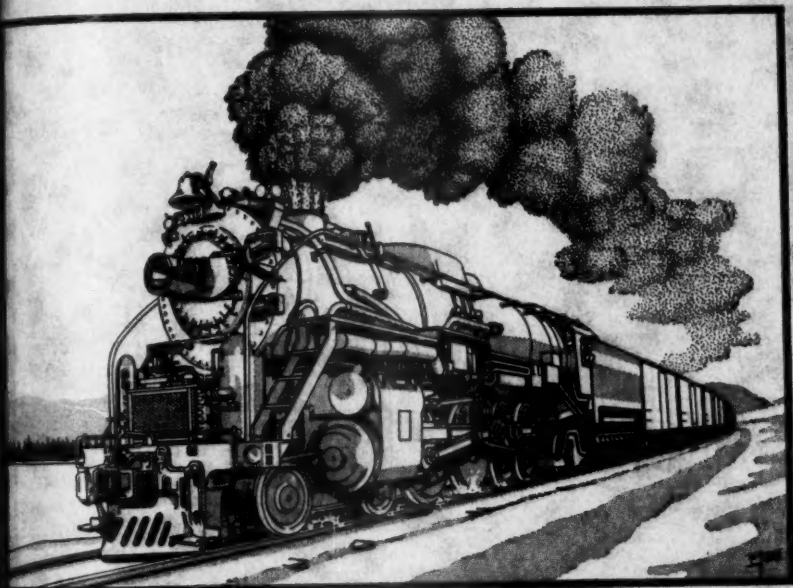


The Railway and Locomotive Historical Society

BULLETIN No. 95



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It is a pleasure to record in this space the enthusiastic response that was given by our membership on the Pacific Coast for our Bulletin No. 94. The effort in arranging the roster of locomotives by "Jerry" Best, the interesting paper by D. L. Joslyn, together with the attractive cover design by E. S. Hammack all went to make it a success and, the fact the roster was up to date made it of additional value and perhaps came as a surprise to many.

In presenting the final publication for this year, we welcome two new contributors to these columns. To J. Wallace Higgins, III, we are indebted for his interesting paper on the dream and efforts of Arthur Stilwell to complete his Kansas City, Mexico & Orient R. R. Many of us fail to realize that the rolling stock for our early railroads had to be carried on the then used transportation routes and many of our rivers formed a part of these routes. Our member Walter F. Becker has made a painstaking search through the early St. Paul newspapers for the arrival of the rolling stock used on the early railroads building in the immediate vicinity. His paper not only affords an early check list for this rolling stock but it shows the long routing that had to be used in order to effect delivery.

Another of the papers from the late A. W. Newton on the C. B. & Q. R. R. is presented herewith. This one covers the several terminals used in Chicago and, save for some short sketches, is the last of the many papers prepared by Mr. Newton. Our member M. B. Wakefield has prepared a short narrative of the "Buzzey Bridge" accident, Stewart Graham has described some odd appearing ten-wheelers on the Elmira, Courtland & Northern and a paper read before our New York Chapter on the Locomotive Brick Arch completes the "consist." We hope that you will find something of interest in this material.

And lastly, through the kindness of our member "Betty" Tone, our cover design shows Boston & Maine No. 4115, one of a group of well designed engines on that road that were used chiefly on their fast freights but were also used on their heavier passenger runs between Mechanicville, N. Y., Boston and Portland, Maine. They were an outstanding group of engines in their day but, they are only a memory now.

The J. W. Stowell Printing Co. regrets the inconvenience caused our members by the delay in this publication.

Of Interest to Our Members

From time to time we have published the aims and purposes of this Society in our publications and with so many new members acquired in recent years, it may do no harm to publish them again.

It was back in 1921 that three men, two of whom have now passed on, joined forces and formed this Society for the purpose of preserving railroad material and for the dissemination of same. The founders hoped that some time they would have a place in which their "treasures" could be exhibited and this dream was fulfilled in 1927 when we were invited to become a part of the Baker Library of the Harvard Business School and were granted two fine rooms in that building. It was also the hope of the founders that the Society would be national in scope and if our membership was to be anything more than purely local, we must have some sort of a magazine to hold the interest of our membership. Thus, the "Bulletin" was born and No. 1 appeared in 1921 and has since been followed by ninety-five numbered bulletins and ten others to which no numbers were assigned—a total of 106 publications.

In the fall of 1933, a number of our members living in or near New York City, met, drew up a petition for the formation of a chapter and this was granted at the Annual Meeting which was held the first of the year. Since that time four other chapters have been formed and by their meetings have brought our membership in closer touch with each other than would have been possible in any other way.

Let us return to the "Bulletin" for a moment. It was felt at the outset that this publication should represent the efforts of our membership and that none other than a member should be allowed to contribute. At one time, a member was required to submit an article in order to gain his membership but this requirement was speedily removed. During the years, papers prepared by men and women, other than our own members, have been offered but have had to be returned for this very reason, for the feeling was, and still is, that when our members cease to take an interest in our publication, then will be the time for the Society to terminate its efforts. So far our members have not failed us.

As the Society has spread out in this country and to other lands, your Publication Committee has tried to make the "Bulletin" have as wide an appeal as possible. The ideal arrangement of each issue would be to have the several sections represented by a paper. This is not always possible. Research in this field cannot be handled like a news assignment; papers cannot always be "tailored" to fit the space without the loss of valuable material and disappointment on the part of the author and this has resulted in a make-up of a series of articles which will have a variety of subject as well as a wide appeal.

In this field it is almost impossible for your Editor to make an assignment, the same as in a newspaper or magazine. It is impossible for him to know of the qualifications as a writer neither does he know the possibilities of the source of material. In most instances, the member

has written your Editor, stating his interest in a specific subject, his knowledge and source of material of same and then inquired if such an article would be of interest. Such a writer has never failed to receive encouragement at the hands of your Editor and any assistance that he can give. In this manner practically all of the material has appeared for publication.

Your Editor has always believed in the individual expression of the author. Papers are checked for their accuracy, so far as possible, because this is paramount in work of this kind. Articles have been "smoothed over" where needed, but the "red pencil" of your Editor has not been used as freely as it might have. And to those of our members who have feared the use of this same red pencil, I'm glad to inform them that criticism has been received because the Editor has not used it more as well as that the papers are too scholarly.

In the past few years, between the work required for your "Bulletin" and to carry on the amount of research work for the benefit of our members, which is rendered to them in most instances as a part of their membership, your Editor was in the need of an assistant. The present incumbent has not been a disappointment and it is his duty to go over these papers and edit them as he deems best in order that they may conform to space and nature of the subject. Our members must remember that printing costs, like everything else have risen and what we could and we would, be willing to include in an article prior to World War II, we would not at the moment. This is the method used at present and, our members may be interested to learn that full sets or nearly full sets of our publications can now be found in over fifty of the largest university, college and city libraries in this country as well as abroad where they are used for reference. Your part in this, as a member, lies in the fact that you are cordially invited to submit a paper upon such subject as may be to your liking, whenever the spirit urges. To those that like to "read" better than to "write," they are held in the same esteem as the contributor but to those that criticise because an article on their favorite road does not appear, the reason for its non-appearance should now be more than evident and the only way to remedy that is to sit down and correct the deficiency.

One thing more and then your Editor will stop. There has been a feeling on the part of certain chapter members that their own chapter should have a publication similar to the "Bulletin." To start such a project, sooner or later would form a rivalry between chapter publications and it would also engender a bitter spirit on the part of the non-chapter members, who are in the majority. At the moment, I can think of no better form to destroy this Society than to permit each and every chapter a publication similar to that of the "Bulletin" and our Directors, very wisely have forbidden such a publication. If an article is worth printing, in a chapter publication, why is it not worth printing in the "Bulletin"?

I am in hopes that these remarks will be the means of getting the true facts before our newer members. When a member criticises our

publication, he criticises his own brother member. Your Editor can be criticised for his selection and that is no better than the contributions at hand. But the member or members whose articles are criticised might very tartly retort that it would be well for the critic to try his own hand and then he would learn for himself. For the member who wrote me "that each Bulletin contains so much that I did not know" is something for these critics to consider and, it seems to me to reflect the spirit of the majority of our membership. Altho' the mail now comes only once a day, your Editor is always ready and willing to help whenever and wherever he is able.

YOUR EDITOR

THE ORIENT ROAD

A History of the
KANSAS CITY, MEXICO AND ORIENT RAILROAD

By J. WALLACE HIGGINS, III

I. *Short Route to the Pacific.*

Take, if you will, a piece of string and a large globe. If you place one end of the string on Houston, or Dallas, or Kansas City, and move the other end up and down the Pacific coast, you will find the shortest distance to Pacific waters is not the distance to the California ports of San Francisco, San Pedro or San Diego. The nearest Pacific harbors lie in the Mexican states of Sonora and Sinaloa, from Guaymas to Mazatlan. Along all this coast there is one large, protected deep-water harbor: Topolobampo, just north of the entrance to the Gulf of California and adjoining the rich Fuerte Valley.

Topolobampo was to be the Pacific terminal of General Grant's little-known Texas, Topolobampo and Pacific Railroad, eighty years ago. It was the goal of Arthur Stilwell's last and greatest dream, the Kansas City, Mexico and Orient Railroad. And it still attracts the attention of Mexico's planners, who seek a closer link between Chihuahua, Sinaloa and Sonora. For the Texas, Topolobampo and Pacific never reached the track-laying stage, and the Orient, caught by the Mexican revolution and a shortage of capital, still lacks two hundred miles of track on the west slope of the Sierra Madres.

The story of the Orient is not a success story. The railway was planned to link Kansas City with China, the Indies, Australia and New Zealand, using the shortest route to the Pacific and connecting there with steamships. It was also designed to develop potential mining and agricultural land, traversing, as it did, an area with few other railroads. The first objective has never been fulfilled; the second, only in part. Yet Stilwell's plan is one which fires the imagination. Perhaps this is the real reason why so many small investors believed in the Orient Railroad. Stilwell's personal charm and unquestioned honesty were great assets, to be sure, but the Kansas City, Mexico and Orient Railroad project, striking south and west through the plains of Oklahoma, Texas and Chihuahua, crossing the Sierra Madres to a new port, opening new lands and offering a short cut to the wealth of the Indies, has a powerful appeal. And the combination of Arthur Stilwell and the Orient idea were sufficient to raise something like thirty million dollars without the support of any major banking or underwriting firm, and to build 750 miles of track in less than ten years.

Today the Orient dream lies dormant. The Orient's line in the United States, purchased and extended by the Santa Fe, is now an integral part of the Santa Fe system. Lines in Mexico, operating as three separate segments, are in government hands. The missing link in the Sierras still blocks through traffic, although Mexican presidents in recent years

have regularly promised immediate construction; apparently the cost of climbing 7400 feet in 155 of those miles is too great for the Mexican treasury. Part of the grading was done in the Stilwell era. But track still stops at Sanchez, at the third crossing of the Continental Divide as one travels westward from Chihuahua, and at San Pedro, 78 miles east from Topolobampo.

The days of great private railways in Mexico are past, and that nation is much less hospitable to foreign capital than was the Mexico of Porfirio Diaz. But Mexico's northern states are far from well-developed. Great mining enterprises could blossom along existing lines of the Orient. Farm produce from the Fuerte Valley could find a ready market in Chihuahua; metals from Chihuahua mines, pine from Sierra Madre forests, cattle from the grazing lands along the Orient could find markets along the Pacific coast. There is still a need for the Kansas City, Mexico and Orient. And, given a Mexican administration more favorable to United States investment capital, even the trans-Pacific part of the dream is not hopelessly gone. Completion of the Orient is the primary economic need of north Mexico. Its completion as Arthur Stilwell envisioned it, with an entrance into Kansas City, a great port at Topolobampo and sixteen hundred miles of railway under one management, would add a railroad enterprise with even greater potential than Stilwell's other dream, the Kansas City Southern.

But this story is not merely one saying "It might have been." It is intended to present the history of the Orient Railroad as it was and is; to catch some of Stilwell's dream, and to explain its failure; to tell of the Orient's lean years, when the entire railway seemed headed for the scrap heap; and to bring the account up to date. As a trans-continental railroad, the Orient failed. But, as an epic of railroad planning, railroad building and railroad finance, the story of the Kansas City, Mexico and Orient Railroad, its predecessors and its successor companies is of considerable interest.

II. *Topolobampo and the T. T. & P.*

Albert Kimsey Owen, a young civil engineer from Chester, Pennsylvania, first caught the idea of a great Pacific port while camped on the shore of Topolobampo Bay, with Fred C. Fitch, another engineer. Owen, working for the Denver and Rio Grande in connection with General Palmer's Mexican construction plans, had learned of Topolobampo from Dr. Benjamin Carman, United States consul at Mazatlan. September, 1872, found him exploring the area and making plans for its development. By May of the following year, Owen had returned East and had presented a plan for a railroad from Norfolk, Virginia, via Austin, Texas, to Topolobampo, at a meeting of the Governors' Convention of the Southern States. Congress was asked to supply a survey of the route, but took no action. Owen, however, knew President Grant, and used his influence to have the entrance to Topolobampo Bay surveyed and mapped (by a later-famous Navy commodore, George Dewey), and various other surveys and negotiations started. Meanwhile, the Texas, Topolobampo and Pacific Railroad and Telegraph Company was organized in Boston and New York and applied for a Mexican concession.

The concession was finally granted in June, 1881, by General Manuel Gonzales, President of Mexico, 1880-1884, between two terms of Porfirio Diaz. Along with it came a concession for construction of a city at Topolobampo, which Owen promptly laid out and mapped, calling it "Gonzales City." The site chosen was on the north side of the inner portion of Topolobampo Bay's double harbor, with the railroad leading off to the north and east.

As enlarged in December 1882, the concession was a 99-year grant of the right to build and operate a railway across north Mexico from Topolobampo to Piedras Negras, with a branch to Presidio del Norte and another branch perpendicular to the main line, paralleling the west coast from Alamos, Sonora, to the port city of Mazatlan. The railway was to receive a subsidy of \$8,064 per mile on all lines, mineral rights for 113¾ feet on each side of the track, duty exemption on construction materials for fifteen years and tax exemption for fifty years. Maximum tariffs were established as follows:

| | <i>First Class</i> | <i>Second Class</i> | <i>Third Class</i> | <i>Coal</i> |
|-------------------------------|--------------------|---------------------|--------------------|-------------|
| Passenger, per passenger-mile | 3¢ | 2¢ | 1½¢ | |
| Freight, per ton-kilometer | 6¢ | 4¢ | 2½¢ | 1½¢ |

The Texas, Topolobampo and Pacific now planned to reach the Atlantic at Fernandina, Florida, north of Jacksonville, with alternate proposals to reach Brunswick, Georgia, and Galveston. Its officers, in 1883, were headed by William Windom, former U. S. Secretary of the Treasury, who replaced Boston's mayor Frederick Prince as the railway's president that year. Ulysses S. Grant Jr. was vice-president; Owen was the company engineer. Apparently Owen's connection with General Grant meant an ample number of prominent names associated with the project, for three U. S. Senators and Tennessee's governor were also interested. Dr. Carman, who had provided the spark for Owen's idea, was on the board of directors.

Owen returned to Topolobampo in 1884 and railway construction began by February, 1885, in the form of clearing and grading inland from the bay. But, in 1885, Owen began work on another idea, for which he and Topolobampo became better known. He planned a "co-operative colony," a socialist enterprise, with no private wealth, using labor credits rather than money. The "Credit Foncier of Sinaloa" was organized to raise capital for the new colony, and on November 10, 1886, the first group of 27 colonists arrived.

The Topolobampo colony consisted of educated people from various parts of the United States, people with some dedication to the collectivist idea but with, in many cases, little farming experience. Although President Diaz was offering full support, the plan was far from successful. By 1900 the colony had collapsed. Perhaps 50 families remained, as individual farmers.

The Texas, Topolobampo and Pacific project apparently died a quicker death, for, in 1888, Owen met with the Kansas City council and proposed the Kansas City, Presidio del Norte and Topolobampo Railroad. Diaz renewed the concession and subsidy promise in 1890, and an attempt was made to organize the "Mexican Investment Company" in

London. July, 1891, saw a "Mexican Western Railroad Company" organized in Colorado. Not one to yield easily, Owen managed to get the concession renewed again in 1897, and reportedly negotiated with Enrique C. Creel, then vice-president of the projected Chihuahua and Pacific Railway, concerning an extension of the C. & P. to Topolobampo.

But Owen's connections, impressive though they sound, produced no railroad. The names of Enrique Creel and the Chihuahua and Pacific Railway are important to the story, but Owen and the Texas, Topolobampo and Pacific served only to interest Porfirio Diaz in the idea of a north Mexico trancontinental railway. Had not the Kansas City, Pittsburg and Gulf gone into receivership suddenly, throwing Arthur Stilwell out of the presidency of his first big railroad, the plan might well have died with the turn of the century. The removal of Arthur Stilwell from the railroad which today is the Kansas City Southern, however, led directly to the planning and organization of the Kansas City, Mexico and Orient.

III. *Building the Orient Railroad.*

Arthur Stilwell's original plan for the Kansas City, Mexico and Orient Railroad, announced at a testimonial dinner at the Midland Hotel in Kansas City, on February 11th, 1900*, involved 1610 miles of railroad from Kansas City to "Port Stilwell" on Topolobampo Bay. The dinner had been planned by Stilwell's friends and associates to show that they still held confidence in the railroad promoter, despite his recent loss of the Kansas City, Pittsburg and Gulf and four smaller railroads north of the Missouri. But Stilwell, who returned from Old Point Comfort for the banquet, completely astounded Kansas City when he was called upon to speak. The speech was not the expected one of mere appreciation. Stilwell, instead, presented his plan to bring the Pacific 400 miles closer to Kansas City with a new railroad that would make the K. C. P. & G look like a short-line.

The mileage-saving was valid when San Francisco was synonymous with the Pacific. Today it appears somewhat exaggerated, as Kansas City is 1784 miles from Long Beach via the Santa Fe's Raton Pass line, and only 1590 miles from Guaymas by way of the present Golden State route to Tucson, then south through Nogales. But his infectious enthusiasm apparently took hold, and Kansas City responded generously.

On the day after the testimonial dinner, Stilwell met with Dr. Woods and Church White of the Bank of Commerce, and laid the financial groundwork for the Orient Road. Stilwell's plan called for the use of three construction companies independent of the railroad. The International Construction Company was the parent; one subsidiary, Union Construction Company, built the railroad through Kansas and Oklahoma, while the other, International Construction Company of Texas, built in that state. Each company was to receive \$18,000 in bonds, \$17,500 in preferred stock and \$12,500 in common stock per mile of railroad built, collect any local subsidies, and own all townsites and mineral properties which would normally belong to the railway. Interest

*: Or a few days later. Sources differ.

on railway bonds for the first ten years was to be paid by the construction companies.

Stilwell then traveled to Mexico to make arrangements with Porfirio Diaz, and, on the way, stopped in Chihuahua to meet Enrique C. Creel, a prominent financier and politician, was now president of the Chihuahua and Pacific Railway, which was building from Chihuahua west to Miñaca and had ambitions of reaching the coast somewhere in Sonora or Sinaloa. The first C. & P. train had left Chihuahua on July 15, 1899, running to end of track at Santa Isabel. But the Sierra Madres, then as now, were a formidable barrier, and Creel readily became enthusiastic over the Stilwell plan. Creel felt the completed railway would pay for itself on trans-Pacific traffic alone, were all Mexico to be unproductive; it would be justified by local mining and timber prospects even if the Pacific port were to be a total loss. Accordingly, Enrique Creel became a vice-president of the Orient, and lent his assistance for the coming meeting with President Diaz.

The interview with Porfirio Diaz proved successful beyond hopes. Diaz, like later presidents of Mexico, had looked upon the Chihuahua-Sinaloa railway as a needed link and a valuable means to unlock the mineral riches of the Sierras. Amendments to Mexico's railway laws in the 1890s had required approval of Mexico's congress for railway subsidies, but an exception had been made for any Chihuahua-Pacific line; Mexican legislative approval for any Diaz plan was easy enough to obtain, but the specific attention paid to this north Mexico link is indicative of the importance Diaz attached to it. Stilwell disclaimed any knowledge of the Owen-Grant-Windom Texas, Topolobampo and Pacific project, and there is no evidence to indicate that he knew of the concessions the Diaz regime had already awarded in hopes of seeing this railway built. As Stilwell told the story in later years, the Orient idea came to him while he was at Old Point Comfort, Virginia, after the K. C. P. & G. collapse in early 1900, and he determined the route by locating the Pacific harbor which was closest to his beloved Kansas City.

But the proposed Orient route was thoroughly satisfactory to Porfirio Diaz. Stilwell's already smooth path also was greased with telegrams from various Midwestern governors and other officials, sent at the request of his backers to counteract any move on the part of the Southern Pacific to block the concession. These praised Stilwell's integrity and urged that Diaz assist the Orient project. And a concession was forthcoming. The Kansas City, Mexico and Orient Railroad was to receive \$5,000 (US) per mile, payable as the railway was constructed, for the 600 miles in Mexico. Of this, the State of Chihuahua was to pay one-fifth. Stilwell was permitted to ask for further state and local aid, and received certain mineral rights. Construction was to proceed east and west from Chihuahua and east from Topolobampo.

The pleasant relationship between Porfirio Diaz and Arthur Stilwell, which had begun in earlier years when the Kansas City, Pittsburg and Gulf ran steamers from Port Arthur, Texas, to Tampico, Vera Cruz and Progreso, was to prove helpful at first. But Stilwell saw none of the gathering clouds of revolution which eleven years later were to sweep

over Mexico, sending Porfirio Diaz to exile, and carrying Arthur Stilwell's railroad down with Diaz's government.

Stilwell's Guardian Trust Company was in legal trouble arising from the K. C. P. & G. financing, and was unable to handle Orient finance. Deprived of the facilities of the Guardian, which he had established in his first Kansas City days and which had served his previous railroad ventures, Stilwell set up the United States and Mexican Trust Company and made it the only financing agency for the Orient. No banking houses or syndicates in the United States were asked to invest. Stilwell preferred to have the Orient owned as much as possible by small Midwest investors, and he never was on good terms with the large houses often grouped together as "Wall Street." English investors also bought railway bonds. \$500,000 was subscribed early in Kansas City. Total capitalization was to be:

\$24,538,000 in 4% gold bonds, 50-year, due February 1, 1951;

\$12,500,000 in 4% non-cumulative preferred stock;

\$12,500,000 in common stock.

The railway was incorporated May 1, 1900, in Kansas; its charter was legalized in Mexico. The Texas subsidiary, the Kansas City, Mexico and Orient Railroad Company of Texas, had been incorporated on July 15th, 1899, as the Panhandle and Gulf Railway, to build from Sweetwater to San Angelo. Stilwell took over the Panhandle and Gulf, itself a revival of the unfinished Colorado Valley Railroad Company, which had built seven miles of track south from Sweetwater. On March 3, 1900, the old P. & G. charter was amended to permit construction of a line from the Red River to the Rio Grande, with a branch from San Angelo to Del Rio. The name was changed at this time.

Kansas, Oklahoma and Texas greeted the Orient with enthusiasm. One of the Emporia newspapers saw the boom coming "just over the next hill" as early as February 21, 1900. By July 4, 1901, when the first spike was driven, Emporia had donated a \$70,000 bond issue and approved the Orient's use of two miles of city street. Other towns along the line also subscribed to railroad bonds or donated to the company, either to get shops and offices or merely to aid the railroad. Wichita donated \$30,000 of city bonds. San Angelo's citizens donated a right-of-way through Tom Green county, a depot site, and a cash bonus of over \$100,000; this guaranteed an Orient route through San Angelo, rather than via Sterling City as first planned. And later, when the Orient agreed to locate shops and Texas general offices in San Angelo if the city would sell \$250,000 worth of railway bonds, the bonds were subscribed in less than a week. Even little Fort Stockton somehow produced \$24,950 in cash.

Grading began in Oklahoma and Mexico in 1902, and the Orient began construction in five segments: north and south from Milton, Kansas; north from Sweetwater, Texas; east from Chihuahua City; west from the Chihuahua and Pacific railhead at Miñaca, and northeast from Topolobampo. First track in the United States to be opened was from Milton south to Carmen, Oklahoma, 74 miles, on April 1, 1903. In Mexico, the first rail was laid in late March of 1902, and on April 30,

1903, trains ran from Chihuahua northeast to Trancas, 35 miles. Trackage rights over the Kansas and Colorado Pacific (now part of the Missouri Pacific) brought trains from Milton to Wichita. Meanwhile, the Chihuahua and Pacific's line through to Miñaca had been opened May 20, 1900.

The Orient Railroad in April of 1903 was a scattered operation with a promising future. Six locomotives, two of which were newly arrived, ran in Kansas and Oklahoma, and three in Mexico; all were second-hand, but 33 new freight locomotives and five passenger locomotives were on order.* Most of the line had been located, although the final grade down the west slope of the Sierra Madres was not yet established. The road was located along ridges, to make drainage easy and reduce the number of small streams to be crossed; larger bridges were to be built over the Missouri, Kaw, Canadian, Red, Rio Grande, Conchos and Fuerte Rivers. Ten or fifteen tunnels were planned, all in Mexico and all but one on the west slope of the Sierras where two or three loops also were contemplated. The western terminal, Port Stilwell, had four to five miles of landlocked harbor, admitting vessels drawing up to 22 feet and permitting improvement to allow a 26-foot draft at little cost.

But other records show that Arthur Stilwell, promoter, visionary and supreme salesman, was no railroad engineer. The track was constructed at minimum cost in flat country, with scant ballasting; the Orient planned to improve the track later as needed. Grades ran 1% to 1¼% between Wichita and the Rio Grande, 1½% east from Chihuahua, and 1% in the Fuerte Valley east from Topolobampo. The Sierra Madres at first were to be scaled by 40 miles of cog railway, on a 14% maximum grade. Fortunately, further surveying located a 5%-grade line, and still further work yielded three routes, close together, with maximum grades of 2½%. The final plan included grades up to 2½% compensated for curvature.

Construction during the first decade was fairly rapid. Rails linked Sweetwater with the Red River in December of 1907; a few weeks later, trains from Wichita were running south to Elmer, just north of the Red, and the bridge connecting the parent and Texas companies was opened on December 1, 1908. Track southward from Sweetwater reached San Angelo in June, 1909. In Mexico, 62 miles of the Pacific Division, from Topolobampo to Fuerte, were opened by December, 1904, and shortly afterward the rails from Miñaca reached Sanchez, 8045 feet up and the start of the Sierra Madres descent. The line east from Chihuahua was completed as far as Falomir, just west of the Conchos crossing, by 1908.

Daily passenger service and weekday mixed trains were operated over lines in the United States, and by March, 1911, a scheduled through freight was also shown in the *Official Railway Guide*, taking 40 hours from Wichita to San Angelo and 38 hours for the return trip. Day passenger trains were run between Wichita and Altus and between Altus and San Angelo. Frequencies in Mexico varied from tri-weekly to daily,

*: Available rosters show no such influx of motive power. 15 locomotives were on the roster in June, 1905, ten more by 1906. The first groups of new power, 30 "mud-hen" 2-6-0s of the 100 series, and the five 4-4-0s, weren't delivered until 1907.

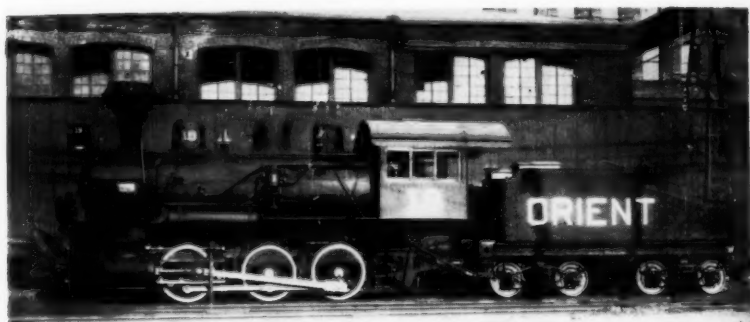
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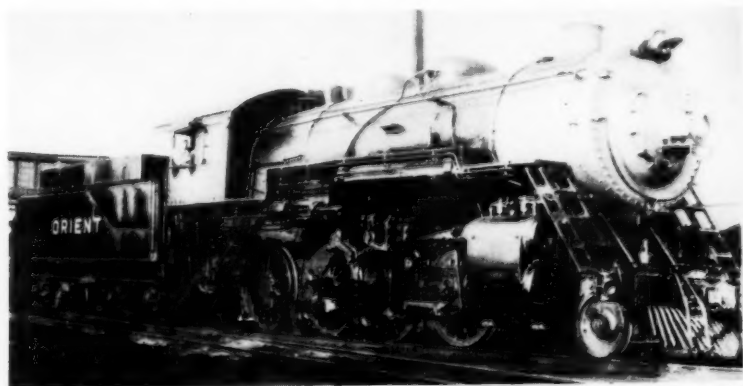
Courtesy of S. R. Wood

Orient #17. Pittsburgh #46538, 1909. To A. T. & S. F. #2500.
At Wichita, Kan., 1927. Scrapped 7-13-33.



Courtesy of Robt. C. Schmid

Orient #19. As built with diamond stack. To A. T. & S. F. #2502.



Courtesy of S. R. Wood

K. C. M. & O. #66. Ex-N. Y. C. #2976. To A. T. & S. F. #2522.
At No. Wichita, Kans., 8/12/29.

with the Chihuahua and Pacific and its successor, the Mexico Northwestern, linking Chihuahua and Miñaca.

Revenues climbed rapidly. Fiscal 1909 operating revenues were nearly triple those of fiscal 1908, reflecting the Red River bridge completion. The 1910 net operating income was more than adequate to cover taxes, although the margin was small and the uncompleted railway was in no position to take over the job of paying bond interest. The 1905 roster of 15 locomotives was enlarged to 55 by 1908, and included 30 Moguls fresh from American Locomotive's Cooke and Pittsburgh works. Over 1900 freight cars, 30 passenger cars and 76 miscellaneous cars were also owned by the company.

The Kansas City extension had not been neglected, but work proceeded at snail's pace. A final route was not chosen until late 1905 for the segment between Kansas City and Osage City, although the route west through Emporia and Eldorado to Wichita was settled by 1901. Construction was to begin by January 1, 1906. The *Topeka Capital* noted, on December 30, 1906, that this line was to be opened by 1908. (The same story quoted Stilwell as saying the railway would be complete in the United States in 1908, and the Sierras would be bridged by 1909.) Yet the only major work done was grading between Emporia and Eldorado; a quarter-mile of track in Emporia had also been built after the first Orient spike was driven there in 1901.

Stilwell's Kansas City terminal subsidiary, the Kansas City, Outer Belt and Electric Railroad, was ready to begin construction in December, 1904, with two million dollars in the treasury. Freight yards were to be located in North Kansas City; a bridge across the Missouri would link the yards to the rest of the Outer Belt property, whose terminal section was to have four tracks—two steam and two electric! The Outer Belt was planned to connect with the Orient proper at Turner, just west of Kansas City, Kansas, and cut diagonally through that city on a route some distance away from other railroads. New industrial sites were included in the typically ambitious program, as was a grain terminal. The railway would meet all railroads in the Kansas City area, except the Alton.

The completed cost was first estimated at \$2,250,000, but, by 1912, the plans had been cut to \$996,000 worth of work. This was to include a double-track line from Turner Junction to the Missouri River (at Second Street, about half a mile north of Minnesota Avenue) and a two-mile branch southeast along the north bank of the Kaw River to 18th Street. Total mileage would have been 9.2, and an additional 1.5 miles would have linked the Outer Belt to the Burlington line in North Kansas City, across the Missouri. This 1.5 miles and its Missouri River bridge account for most of the difference in cost. Of the scant million dollars for entrance into Kansas City, Kansas, over half (\$560,000) was to be spent bridging the Kaw. Freight yards, under the modified plan, were to be four miles west of Second Street, at the junction of the Kaw River branch.

Work soon began on grading, and a deep cut was made through the hills west of Kansas City, Kansas. Some of the shorter bridges were put in but no rail was laid.

Meanwhile, some investors began to doubt the Orient's potential earnings, and, to ease their fears, vice-president E. Dickinson and J. T. Odell prepared a survey of potential gross earnings. The report was based on estimated agricultural production and livestock shipments from areas permanently tributary to the railway, and on Wichita-Sweetwater freight traffic handled in early 1909. Total estimated revenues of \$13,500,000 per year were predicted, of which \$3,000,000 were to come from international traffic and \$2,343,250 Mexican revenues. Dickinson and Odell estimated net revenues at one-third of gross, yielding an income quite adequate to meet fixed charges and pay dividends.

These encouraging figures were not to be approached, however, until the Big Lake, McCamey and Pecos County oil field discoveries brought new traffic to the Orient in 1923 and afterward. In 1923, freight revenues totaled \$3,233,086 on 950.6 miles of track, a per-mile gross freight revenue of \$3401. Kansas and Oklahoma lines brought in \$6035 in freight revenue per mile, Texas lines \$3415, and the revolution-battered Mexico lines a mere \$348. Dickinson and Odell's estimate was \$5327 per mile for lines in the United States, excluding international traffic. Passenger revenues were even slimmer by comparison. In 1923, passenger revenues were \$244,092, and other passenger service revenues such as mail and express totaled \$129,943. If all of this is assumed to be U. S. revenue (ICC reports do not separate Mexico passenger income but it was undoubtedly small) the per-mile gross revenues were \$337 and \$179 respectively. Dickinson and Odell, predicting on the basis of 1909 revenues with an allowance for population increase, had anticipated \$1500 per mile from passengers and an additional \$125 from mail and express.

The Orient continued to build westward, although storm signals were visible on the horizon. Fifteen Consolidations and four switchers from various American Locomotive Company plants arrived in 1909-10; the route from San Angelo west to Girvin was opened in stages during 1911 and early 1912. Stilwell's unflagging enthusiasm brought parties of prospective investors to inspect the Orient and the land it traversed. The Sierra Division, west from Miñaca to Sanchez, was a favorite. The mountain trackage not only passed through beautiful timberland and mining country, but was better built than the rest of the railroad. (Enough deep cuts had been made to provide a good supply of rock ballast.) And it proved that the Sierra Madres could be scaled, at least from one direction. Some grading was done downhill from Sanchez but no track was laid, and an eleven-mile section in the mountains was never definitely located.

Imminent completion of the Panama Canal caused some worry at company headquarters, and justifiably so. Lower water rates would divert traffic to Atlantic and Gulf ports. The traffic on which the location of Topolobampo would have saved most time—shipments to and from Peru and Chile—would have suffered most. But officially, at least, Orient executives took comfort in Fuerte Valley coal and the prospect of making Topolobampo a coaling station for steamers plying between the Atlantic and California via the new canal.

But catastrophe struck before the canal was opened. Mexico's Revolution put a stop to construction and blocked Stilwell's attempts to raise more capital. Stilwell's helpful friendship with Porfirio Diaz was now far from an asset. To complete the picture, Pancho Villa had been a Stilwell contractor and was now leading his band of revolutionaries in fighting which crippled most of the Orient's Mexican operation. Rarely has any man done a better job of supporting the wrong party than Arthur Stilwell did in Mexico! For, as he describes his relations with Villa, "... whenever I met him on the railroad I carefully avoided inviting him into my private car. I could never quite reconcile myself to any close contact with Villa. He was a horrible-looking fellow, always greasy and dirty, and it was just a little more than I could do to associate with him in any way. . . ."* Matters were so bad that local superintendent Juan F. Treviño took refuge in El Paso for the two years Villa controlled Chihuahua City.

The railway became responsible for its bond interest on February 1, 1912. Stilwell, believing that the Mexican troubles would soon be over, tried to raise another five million dollars through sale of bonds in Europe. He and Dickinson had previously sought European capital in 1903, with some success. But this time the sale fell through, perhaps blocked by the large financial houses which Stilwell saw opposing him every step of the way, but more likely doomed by the Mexican fighting. Orient bonds had been none too strong anyway, having sold as low as 40 in the summer of 1911.

When the time came, the treasury just did not have money to meet interest on \$18,500,000 worth of 4% bonds, and Dickinson, J. O. Davidson and M. L. Turner were appointed receivers on March 7, 1912. The Texas corporation also went under two days later, receivers being S. B. Hovey and M. L. Mertz. Arthur Stilwell was out, and his dream had ended.

IV. *The First Receivership.*

The receivers for the Kansas City, Mexico and Orient Railroad and the Kansas City, Mexico and Orient Railroad Company of Texas inherited some 950.6 miles of railway, extending from Wichita, Kansas, to Girvin, Texas, and from Falomir to Chihuahua, Miñaca to Sanchez and Fuerte to Topolobampo in Mexico, along with a quarter-mile of yard track in Emporia, Kansas, leased to the Missouri Pacific. While the construction was far from heavy-duty, the mountain section was in good condition. Otherwise, the 70- to 75-pound rail (60 in most of Mexico) was spiked to untreated ties, with little ballast, and maintenance was inadequate. Rolling stock included 75 locomotives, of which 64 were new American Locomotive Company Consolidations, Moguls, switchers and 4-4-0 types bought under equipment trust agreements; 14 coaches, 10 combination passenger and baggage cars, 9 baggage cars and two other passenger-train cars; 2058 freight cars and 74 service and miscellaneous cars. A new shop had been built on 760 acres of land, agricultural and mining lands that were often without other transportation three miles from downtown Wichita. The railroad route lay through

*: Autobiography, "I Had a Hunch". *Saturday Evening Post*, 1928.

tion, for the intensive railway net of the wheat belt was left behind when the Orient crossed from Kansas into Oklahoma. Once completed, the Kansas City, Mexico and Orient would open up virgin mining and timber lands of northwest Mexico, and its potential was great enough to appeal to many persons who lacked Arthur Stilwell's visionary leanings.

Yet all was not well, or the railroad would not have gone into receivership. Earnings from local traffic were far below expectations. Conditions in Mexico were such that no work could be done on the 75 miles from Falomir to the Rio Grande, which had been graded, or on the 200 miles of railway down the Sierras—a link which involved a drop of 7389 feet from Sanchez to La Junta, Sinaloa, through canyon country. The mountain construction cost had been estimated as high as \$500,000 per mile, a formidable barrier to be overcome before the rest of the system could be linked to the Fuerte Valley line, Topolobampo and the trans-Pacific service. (Stilwell had already made a contract with the Hamburg-American Steamship Company for this service and also established the Mexico and Orient Steamship Company, to provide a monthly coastal service, Guaymas—Topolobampo—La Paz—Mazatlan.) And as long as Villa ranged northern Mexico, the railway's existing 226 miles of Mexican line were none too secure.

The new receivers planned to carry on construction as far as possible, and their first goal was a connection with the Southern Pacific at Alpine, Texas. Dickerson had hoped to gain enough interchange traffic at Alpine to put the railway on a paying basis. The present Golden State Route was then a Chicago—El Paso route only, as the Tucumcari—El Paso line was part of the El Paso and Southwestern system and independent of the Southern Pacific until 1924. The Orient was therefore in a position to compete for traffic to California once this connection was made. But the new connection was not a success. It is probably of no importance whether the Southern Pacific still retained Harriman's antipathy toward Stilwell and the Orient; for whatever reason, the Orient secured only a trickle of interchange freight when the Girvin-Alpine extension was opened in June, 1913. \$1,120,000 of receivers' certificates were added to the interest-bearing debt.

Receivers Turner and Davidson wanted to move general offices to Wichita in 1912, to save office rent; Wichita had offered free space. Some Kansas City shippers blocked this move by stating they had been shipping freight via Orient because it was "a Kansas City road" even though competing lines offered better service. Dickinson stuck by Kansas City and the offices stayed.

The Wichita Union Terminal Company, however, was not of the "free space" school of thought. In January, 1915, the terminal line upped rental charges for the Orient's two passenger trains; the Orient promptly parked a coach at Douglas and Mosley avenues, opened a ticket office there and moved #1 and #2 out of Union Station. This arrangement was temporary, but the trains were next shifted to the Midland Valley station on West Douglas and didn't return to Union Station until the Santa Fe era.

Further south, passenger service was improved. An Altus—San Angelo night train was added in February, 1915, providing a 36-hour

service from Wichita to Alpine. The day Altus—San Angelo train stayed in the timetable until August of that year. And these few months were the first and last time that the Kansas City, Mexico and Orient offered a choice of through passenger trains between any two points on the railroad.

The receivers and the bondholders' committee then worked out a plan for reorganization, involving new capital to be raised from the original Orient bondholders. An issue of two-year 6% gold notes was floated in 1914, and \$5,640,200 worth of the \$6,000,000 were sold, principally in Europe. Receivers were discharged June 30, 1915. On December 8, 1915, the reorganization committee—headed by England's Lord Monson, and including among its members William Kemper and the ubiquitous Leonor F. Loree*—placed the reorganization plan into effect. The plan was designed to obtain enough new money to pay off existing debts; acquire the Kansas City, Outer Belt and Electric and build a line from Wichita to Kansas City; pay fixed charges until the Kansas City line was opened, and provide working capital. New securities were to be:

| | |
|------------------------|---|
| 50-year 5% gold bonds: | \$50,000,000 authorized. Planned issue \$15,003,600. |
| 5% preferred stock | \$35,000,000 authorized. Planned issue \$27,273,333. |
| Common stock | \$35,000,000 authorized. Planned issue \$29,064,667. |

Preferred stock was to be non-cumulative, non-participating and convertible.

Under the reorganization plan, railway and Outer Belt bondholders and construction company stockholders were to have the option of paying a cash assessment or being wiped out; railway and Outer Belt stocks were considered valueless. The \$923,400 in five-year sterling notes, floated by Stilwell in 1908, were also to be ignored, as well as \$769,847 of short-term notes and \$55,288 the railway owed to Stilwell. For example, an owner of a \$1000 railway bond, on payment of \$600 cash, would receive \$600 in new bonds and voting trust certificates representing \$1000 each of common and preferred stock. Cash paid was, in each case, to be represented by new bonds, with common and preferred stock to replace old securities. By absorbing the construction companies the new corporation would obtain title to all graded rights-of-way and various other properties.

The new corporation had been chartered as the Kansas City, Mexico and Orient Railroad Company. Directors for the first year included Dickinson, who was serving as president, Kemper, and nine others. The charter granted authority to acquire the old Kansas City, Mexico and Orient Railroad, the Outer Belt and the three construction companies,

*: Loree apparently exercised quite a strong voice in Orient affairs, for Stilwell and several other writers have stated he was later receiver for the railway. Contemporary information does not confirm this, and Loree is not on the proposed 1915 board of directors. The K. C. M. & O. was not of enough importance, among the many enterprises with which Loree was connected, for his biographers to give it mention, but apparently the Delaware and Hudson president left his mark on the Orient.

and to "acquire, construct, maintain and operate" a railroad to the Gulf of California or the Pacific Ocean. Company plans, naturally, were to postpone Mexican construction until the situation there became stable.

Stilwell's fondness for sales to European investors, however, doomed the new plan. Many of the bondholders were in England, and England in 1916 was a poor place to raise capital. The new corporation raised only three million of the expected \$15,003,600, not enough to redeem the gold notes which matured on April 30, 1916. The Orient of Texas, returned to its owners on July 8, 1914, stayed out of further receivership. But the parent company was forced under water again and William Thornton Kemper was the new receiver, effective April 16, 1917.

V. *The Lean Years.*

William Thornton Kemper, the new receiver, had helped organize Kansas City's Commerce Trust Company in 1906. He had sold his Trust Company interest to the Southwest National Bank of Commerce in 1917,* served as the combined company's board chairman for a short while, and then found the Kansas City, Mexico and Orient Railroad nearly a full-time job. The first receivers had hoped to build east to Kansas City and eventually finish the line. Kemper's problem was to find the funds to keep the railway in operation, for the slim operating revenues of 1915, 1916 and 1917 were to give way to million-dollar deficits during 1919 and 1920.

Kemper's first headache was the United States Railroad Administration. The USRA at first was reluctant to take the Orient over; when it did, it closed the road's traffic offices and used the line primarily to haul empty boxcars. The 1915 passenger service had linked Wichita to Alpine with 36-hour service, with sleeping cars for the overnight part of the run between Altus and San Angelo; a Dallas—Sweetwater—San Angelo sleeper was also run in cooperation with the Texas and Pacific. But this was not to last. Even before the USRA, the San Angelo—Alpine train was combined with time freights 19 and 20 into a slow mixed run. Under the USRA, passenger service became a daytime-only affair, with overnight layovers at Altus and San Angelo, and the train north left San Angelo at an uncomfortable 5:15 a.m. Passenger service was just one index of the deterioration. The 1918 Texas operating ratio was 127 and for the first six months of 1919 it was up to 176; for the parent corporation, ratios were 127 and 167. The deficit, of course, was assumed by the USRA, which was paying the Orient \$150,000 a year and "half of any railway operating income in excess thereof." But the problems were turned back to Kemper when USRA control ended in 1920.

If the United States government was of little assistance, Mexico's lack of a real government was worse. The Pacific Division struggled along, serving the Fuerte Valley with a tri-weekly mixed when there didn't happen to be any battles in progress between Topolobampo and Fuerte. Between Falomir, Chihuahua and Sanchez, service was "irregular" and track was constantly being torn up by Villa's revolutionaries and other armies.

*: The present Commerce Trust Company and National Bank of Commerce both grew out of this merger.

But, by 1920, the Orient had made itself essential to much of Texas and western Oklahoma. Stilwell's homestead and land-promotion policies had built up communities dependent on the railway; the farmers and townspeople along the line were not shipping enough to keep finances in the black, but they did what they could. Kemper's sixty locomotives (as of June 1919 and probably not including those in Mexico) provided the only link between towns like Fairview, Oklahoma, or Fort Stockton, Texas, and civilization.

The Kansas City, Mexico and Orient Railroad came dangerously close to following the Colorado Midland into oblivion during the next three years. Instead of the transcontinental railway Stilwell had planned, Kemper had some 735 miles of prairie railroad, serving sparsely settled wheat and grazing country, and 226 now useless miles in Mexico. The isolation of the railway, which made it so essential to the towns it served, was to force local and state governments to seek ways to keep the Orient running. Kemper had the thankless task of keeping expenses to the minimum while attempting to find enough freight to pay necessary bills. "High Iron" was of the two-streaks-of-rust type, as always in the Orient's independent career, but some maintenance had to be done to keep the track usable. Cutting expenses was difficult but it was accomplished. Maintenance of way, equipment and structures in 1920 cost three times as much as in 1914, but the dollar had lost value and everything to be maintained was six years older. Kemper managed to reduce maintenance costs 40% from the 1920 level, by 1923, showing a modest net operating revenue of \$191,991 for the latter year; the operating ratio declined from 139 in 1919, and 134 in 1920, to 113 in 1921, and 95 in 1923.

With little cash in the till, Kemper and his general counsel, Clifford Histed, could not wait for local aid and economies to take effect. The Orient's requirements were pressing, and the ICC was asked for a \$2,500,000 loan on May 15, 1920, in accordance with the Transportation Act of 1920. The ICC at first declined. Kemper and Histed had cited the need to meet receivers' certificates maturing December 1, 1920, provide equipment, and make other additions and betterments. Unable to see how meeting maturing debts with borrowed money would help the railroad's operation, the Commission claimed the need for equipment and improvements had not been established.

Kemper and Histed asked for reconsideration during the summer of 1920, and now stated that the money was needed to continue operation. They convinced the ICC and a loan at 6% was approved on October 11th, the first to be made from the three-hundred-million-dollar revolving loan fund established under the Act. When Kemper could not get 90% of the gold notes deposited as collateral, probably because owners were scattered all over Europe as well as America, he reached an agreement with the trustees of the note issue; the United States government was given a first lien on all Orient property, "real, personal or mixed." A receiver's note was given the ICC to cover the loan.

The Director General of Railroads meanwhile paid the Orient \$916,000 in April and October, 1920, in partial settlement of United States Railroad Administration accounts.

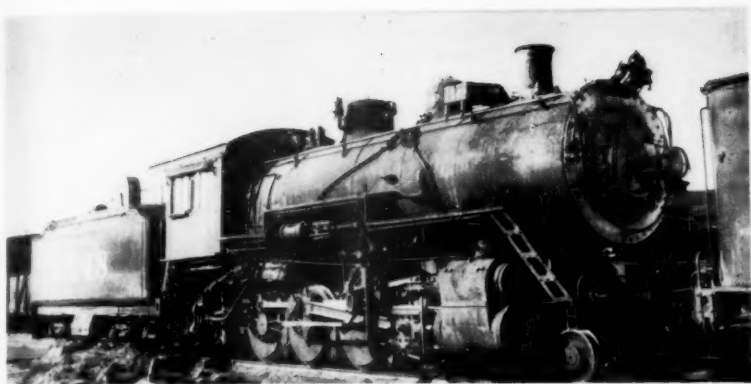
Borrowing money to meet current expenses has one major drawback: current expenses are increased by interest on the loan. And unless revenues are increased, the problem is merely postponed, to reappear more painfully in following years. This, in brief, was the Orient's trouble. By 1922 the Orient was \$75,000 in default on interest due the government, which came out of the final USRA payment of \$115,000. Financial troubles had not abated and there was a plan to abandon operations August 1, 1922. Drought years and high costs had continued. Clifford Histed's testimony before the Railway Labor Board in April, 1922, supporting a 25% cut in Orient wages, showed the seriousness of the situation. While the railroad was not basically opposed to the "justness and reasonableness" of present wages, the management saw revenues inadequate to meet payrolls—the old story of "inability to pay." Histed was not contemplating formal abandonment, but foresaw suspension of operations resulting from exhaustion of funds: "It is not a question of what would be even a fair wage. It is a question of the ability of this property to produce the money."

The American Train Dispatchers' Association magazine *The Train Dispatcher* (April, 1922) reported the case with caustic comments that it was up to the ICC to solve the Orient's problems, and that workers should not be asked to sacrifice. But it was to take cooperation of all parties to keep Kansas City, Mexico and Orient trains running. Despite opposition of this sort from the railway unions, wages were reduced to March, 1920, levels in 1923; the Labor Board at first split on the decision.

Local and state governments saw the problems that would result if the Orient were forced to suspend, and began taking action in 1922. Lieutenant-governor Lynch Davidson of Texas saw state control as the "only possible solution," to be accompanied by federal laws exempting the road from railroad regulation as long as it remained under State control. The Oklahoma Senate memorialized Congress to aid the Orient in some such manner.

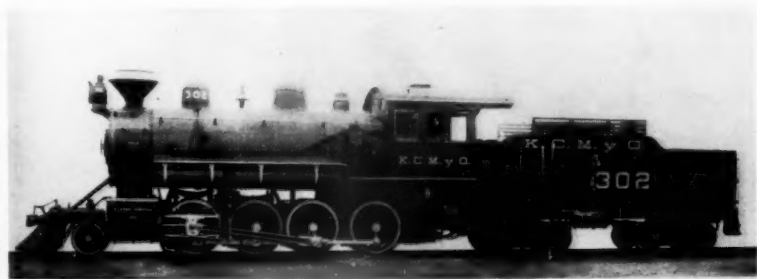
San Angelo took more direct action; a group of citizens met to consider the railroad's plight in August, 1922, and then urged the county commissioner to reduce taxable valuation of Orient property to \$100 per mile. The idea spread, and the ICC heartily approved. ICC direct action was slow, however. The Commission, saying it was "not authorized by law to reach into the public treasury to relieve suffering, no matter how acute it may be," began to examine other means of aid. Increased shares of joint revenues, ranging as high as 24% over previous shares, were prescribed but this was blocked until 1925 by court action. An arbitrary increase of \$10 per car was approved and put into effect. The ICC did obtain promises of aid from connecting carriers, and a rate reduction was applied to interline traffic using the Orient and connections to or from Gulf and East Texas points, lumber traffic, sugar and transatlantic shipments. Abandonment was averted, although by a close margin.

The planned Kansas City terminal was no longer an immediate goal and there was little the Orient could do to hold the Kansas City, Outer Belt and Electric. This property was of potential value to other lines,



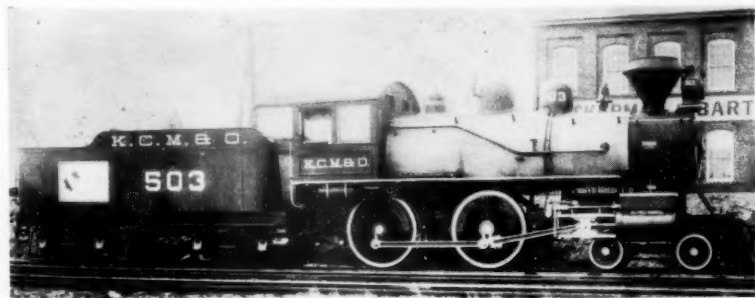
Courtesy of E. B. Kille

Santa Fe #2548. Ex-Orient #214. Pittsburgh #48644, 1911.



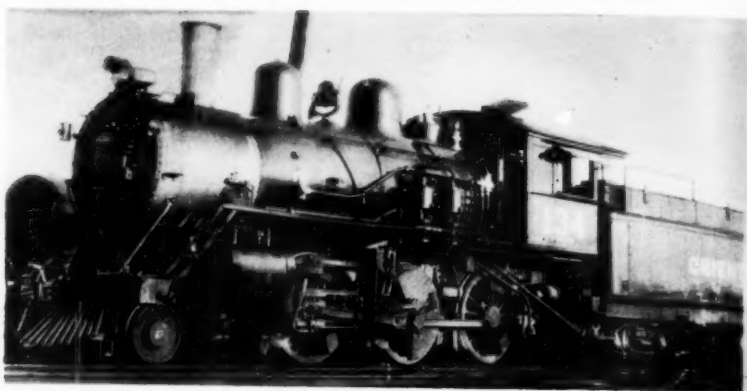
Courtesy of Robt. C. Schmid

#302, for the Orient of Mexico. Cooke #38447, 1905. To A. T. & S. F. #2553.



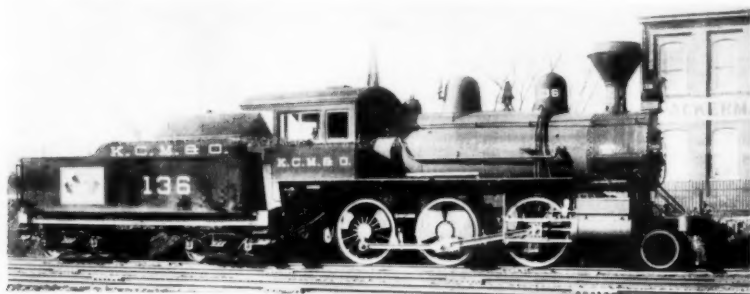
Courtesy of Robt. C. Schmid

Orient #503. Cooke #38450, 1906. As originally built with Allfree-Hubbell valves and link motion. To A. T. & S. F. #2558.

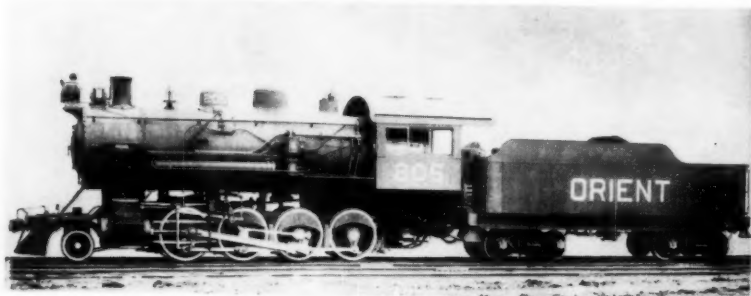


Courtesy of S. R. Wood

Orient #134. Cooke #41232, 1907. To A. T. & S. F. #2529.
As rebuilt with Walschaerts and piston valves.



Orient #136, as built with Allfree-Hubbell valves and Stephenson valve gear.
Cooke #41234, 1907. Not to A. T. & S. F.



Courtesy of Robt. C. Schmidt

Orient #205. Pittsburgh #46537, 1909. To A. T. & S. F. #2539.

however, as eight miles of route had been graded at a cost of \$1,800,000. Cutting diagonally across Kansas City, Kansas, the route had a 1½% hump 1000 feet long; some bridges were built, though not the Kaw River span. No rail was laid and the Outer Belt lay dormant for some years.

In October, 1922, the property was sold to Joseph J. Heim, of the Kansas City, Kaw Valley and Western Electric. Heim paid \$350,000, and Outer Belt bondholders received \$71 per \$1000 bond. Reorganized as the Kansas and Missouri Railway and Terminal Company, the line was completed with 85-pound rail and electrified. The Kansas City Southern reportedly was involved in the deal. Service has since been provided by the K.C.K.V. & W.E., which still runs freight trains as far west as Bonner Springs, Kansas. The electric railway's line from Bonner Springs to Lawrence and its passenger service have vanished, but switching and industrial track in the Kansas City area remain, and track is still in use on the Outer Belt's route.

Orient construction-company crews also had graded along the planned route from Emporia to Eldorado, Kansas, and the grade was sold to the Santa Fe during the 1920s.

Lines in Mexico meanwhile continued under Orient control and such operation as conditions permitted was self-sustaining. The United States consul at Nogales picked up an interesting report in late 1921, to the effect that "British interests" were ready to begin work to finish the railway, but no more is heard of this story. Pacific Division trains continued to serve the colonists of the Fuerte Valley (a group of Mormons had been added to the remnants of Owen's communal settlement) and their Mexican neighbors. Most of the track in the state of Chihuahua was out of service, so at least there was no steady drain of unprofitable day-to-day operation.

And from Wichita to Alpine, Orient trains still ran—slowly, and not reliably, but they ran. The railway's financial condition was so precarious that at least one livestock man refused to ship via the Orient for fear he couldn't collect in case of a damage claim. Salvation was to come from oil, not from the ICC nor from local aid. Two tank cars were loaded at Fort Stockton in 1922, from three experimental wells drilled about 1915. These were harbingers of the new day in Orient affairs. Drilling continued all along the line from San Angelo to Fort Stockton, and on May 28, 1923, the Santa Rita well "blew in" at Big Lake, some 74 miles west from San Angelo and far from any other railroad.

VI. *Oil and Happier Finances.*

The Santa Rita well at Big Lake was the first of a series of wells, which were to produce 89 million barrels of oil in the Big Lake district, during the next fifteen years. Three more fields were opened shortly afterward. Wells at McCamey, 121 miles down the line from San Angelo, were a source of Orient revenues from 1925 on; the Church-Fields-McElroy field, northwest of McCamey, and the Yates field, along the Pecos River southeast of Fort Stockton, came in during 1926.

Oil shipments provided the needed boost to Orient revenues and the prosperity oil brought to West Texas bolstered general freight traffic.

Each major discovery was linked with distant refineries by pipeline within a year or two, but new fields were constantly being opened and pipeline equipment, naturally, was shipped in via the Orient. In 1927 oil accounted for 48% of the Orient's revenue.

The principal oilfields along the Orient during the 1920s were:

| <i>Field</i> | <i>Nearest Orient Station</i> | <i>Date Oilfield Opened</i> | <i>Date Pipeline Opened</i> | <i>Production to 1-1-33, million bbl.</i> |
|-----------------------|---------------------------------------|-------------------------------------|-------------------------------------|---|
| Big Lake | Big Lake | 5-28-23 | 4-18-25 | 89 |
| McCamey | McCamey | 9-25-25 | 1927 | 36 |
| Church-Fields-McElroy | McCamey | 1926 | 1927 | 105 |
| Yates | Fort Stockton | 1926 | 1927 | 233 |
| Fisher County | Hamlin | 1928 | | 9 |

Revenues from oil were not to make the Orient any dream railroad. Five years after Big Lake, revenues were still shaky, wages substandard, equipment inadequate to meet wheat-crop peak requirements. But the treasury was no longer hopelessly empty. Money could be spared for long-deferred maintenance and even for advertising, which climbed to \$1,711 in 1925. The 1923 report showed a princely advertising expenditure of \$4.

The government foreclosed its loan in 1924, and the property underwent another of its partial reorganizations in the form of a forced sale, on March 27, 1924. General counsel Clifford Histed bid three million dollars; the only other bid was \$2,764,000 and Histed's bid was accepted, preserving the continuity of the Kemper management. English note-holders asked for postponement of the sale but Judge Pollock refused. Under this 1924 plan, Histed was to purchase the loan from the government, and a new company, the Kansas City, Mexico and Orient Railway Company, was to take over operation of the property. The three million was to cover \$2,500,000 in principal amount, and \$463,249.68 for what the ICC report called "unearned interest from March 23, 1925." *

This was not the last step in terminating the Orient's receivership; far from it. The loan was not paid, but extended again, and in 1926 Kemper asked for an extra million dollars. The ICC now said it was without authority to grant the increase. Another extension was permitted, however; the \$2,500,000 was now to be a "first and only" lien on the new company, and meanwhile was secured by a 6% receiver's certificate. Some indication of the Orient's improving finances can be gleaned from the lack of future references to defaulted interest.

By the summer of 1927, Kemper, Histed and an American note-holders' committee had reached agreement on Histed's reorganization proposal. The plan was announced on August 5, 1927, and, as seems to be typical of Orient reorganization plans, it required new capital from old securityholders. An issue of 75,000 shares of no-par common stock was to go to Histed; he and Kemper were to retain 35,000 shares for services and for a cash contribution of \$1,250,000, while Histed was to offer the other 40,000 shares to gold-note holders at \$80 per share, the money to go to the new railway.

*: ICC Reports, 145:339. FD 4813, 4814, 4826-4705.

An appeal by London's Trustees Corporation Ltd., British trustees for the gold-note issue, led to a modification by the Eighth Circuit Court of Appeals. Noteholders were given rights to buy proportionate quantities of the 35,000 shares earmarked for Kemper and Histed, at \$71.61 per share plus interest from October 18, 1927. Purchasers under this plan could also make proportionate purchases of any stock not subscribed by November 18, when the original rights were to expire. Sale of the 35,000 shares would produce \$2,506,350, which was to cover Histed's \$1,250,000; interest on it, April 8, 1925 to October 7, 1927, \$187,500; and compensation of \$1,068,850 for Kemper's and Histed's services from April 17, 1917 to January 1, 1927. Both men had been serving the Orient without salary for that time.

The 35,000 shares were subscribed to the limit. British noteholders bought 14,455 shares, American holders 20,345, and the remaining 200 went to other individuals. The 40,000 shares making up the balance of the authorized issue never left the Orient treasury. Kemper and his associates, however, bought many of the gold notes before they were converted into stock. In 1928, when the Atchison, Topeka and Santa Fe Railway entered the picture, it found control was in Kemper's hands. The Santa Fe's first move was to buy rights of the English investors, at \$414.50 per share. Purchase of Kemper's 20,349 shares was approved by the ICC, effective September 24, 1928; thus, for \$414.50 per share, the Santa Fe gained control of the Kansas City, Mexico and Orient.

Kemper and his associates had done quite well for themselves by arranging the Santa Fe purchase, so much so that a suit was filed against Kemper, in 1929, by a group of former noteholders, who claimed he had profited by over six million dollars at the expense of railway investors. The charges were that Kemper withheld information about the pending sale and the generally improved financial condition until his agents could purchase the defaulted notes at ten to twenty-five percent of face value. Representative Tinkham, of Massachusetts, cited his sale of \$10,000 in notes to Kemper for \$1166.67. The profits, if the sale was made as claimed, were considerable; Kemper's total investment in this particular instance would have been \$5657 (\$1167 for notes, \$4440 for 62 shares of stock, \$50 for expenses of the reorganization committee) and the price to the Santa Fe \$25,700, yielding a profit of 354% on the investment.

Another Kemper speculation in Orient financial matters brought out by the court fight involved claims against the Orient, which Kemper had bought and resold to the railway. These claims covered work by the three construction companies and \$333,594 worth of rail and fastenings from Carnegie Steel. Kemper bought the first claim from the construction companies for an alleged \$350,503 (its original value was something like six million dollars) and then obtained court permission for the railroad to pay him \$850,000 in settlement. Comparable figures for the Carnegie claim were \$115,000 and \$250,000. This profit was admitted by the receiver, who claimed* that he was depositing the

*: In *Orient Magazine*, August 1927. Kemper here stated that he had paid a total of \$515,503 for the two claims.

profits to the Orient's account; payment, apparently including interest, was \$683,020.95. Kemper did not state why he used his position as receiver of the Orient to make \$683,000 at the railway's expense, nor why, if he intended to turn the money over the Orient, it was not deposited when the Orient most needed it.

But whatever Kemper, Histed and the rest may have profited personally, their main effect on the Orient was undoubtedly good. Kemper earned his money through determination and ability, keeping the Orient running when a lesser man would have yielded. Once the oil revenues were added, he headed a rehabilitation and betterment program which was to improve the railway considerably by the time the Santa Fe bought the property.

VII. *Rehabilitation.*

As oil revenues strengthened the Orient's finances, receiver Kemper could make a start on long-deferred maintenance. While most of the work was routine track, rolling stock and building repair, Kemper also added several locomotives (most of which were second hand) and a substantial number of cars. Lines in Mexico were restored and extended, with government aid.

Maintenance outlays increased steadily from 1923 to 1927:

| <i>Year</i> | <i>Maintenance of Way and Structures</i> | <i>Maintenance of Equipment</i> |
|-------------|--|---------------------------------|
| 1923 | \$ 751,636 | \$ 738,932 |
| 1924 | 971,431 | 1,128,402 |
| 1925 | 1,157,998 | 1,387,882 |
| 1926 | 1,829,962 | 1,359,384 |
| 1927 | 3,938,332 | 1,513,874 |

The motive power roster was changed by the addition of 36 locomotives and rebuilding of most of the others. During late 1924, six Consolidations were bought from the St. Louis and Hannibal,* and a few months later the Orient invested in five new Baldwin Decapods, augmenting the three "Russian" USRA 2-10-0s which had come to the Orient around 1922. These new oil-burning locomotives, numbered 801-805, were the only locomotives the Orient bought new after the Stilwell era. Their hauling capacity was a new high for the Orient, though their speed was in keeping with K. C. M. & O. tradition: a maximum of 27½ miles per hour.** In 1927, all of the older locomotives north of the Rio Grande were converted to burn oil.

A pair of Brill motor-and-trailer trains and a single car were ordered in 1925, and the trains entered service in December, replacing steam passenger service west of San Angelo. The single car ran a shuttle service between San Angelo and Texon, supplementing the once daily motor train to Alpine.

Twenty-five more locomotives came to the Orient in 1926 and 1927. Three Consolidations came from the Union Pacific and the Katy, and were sent to the Mexican lines. Twenty-two more 2-8-0s from the New York Central stayed in the United States. These boosted the roster

*: Testimony was given at the 1927 reorganization hearings that Kemper paid the \$80,000 for these six from his personal funds.

**: Their speed limit in later years, under the Santa Fe, was 35 mph.

north of the border from 63 to 76 locomotives over the two years, the difference being nine locomotives scrapped, probably of the 126-156 "mud hen" series of Moguls.

Passenger and freight equipment were not neglected. A test lot of 50 new steel-end boxcars was bought in 1925; that same year the Altus-San Angelo day passenger train was again replaced by an overnight run, providing through service from Wichita to Apline in two days and one night. The service was further improved when the Pullman sleepers "Carondelet" and "Mauretania" were added between Altus and San Angelo. The sleeping car between San Angelo and Dallas, via Sweetwater and the Texas and Pacific, came back on the schedule. With good connections with the Frisco at Altus and with the T. & P., the new night run added respectability to the Orient's dilapidated "fleet" of passenger trains, and the motor car service from San Angelo to Alpine was making at least that part of the service all-steel.

Orient efforts to handle local freight were publicized in 1925, when the railway brought the first carload of the year's small wheat crop to Wichita. Through freight, however, required comparatively more effort. Off-line traffic agencies listed in the May, 1927, timetable were at Chicago, Detroit, Pittsburgh, Washington, St. Louis, Tulsa, Dallas, Fort Worth, El Paso, Los Angeles, San Francisco, Seattle, and the almost on-line Texas towns of Abilene and Wichita Falls; Mexico City; and, of course, in Kansas City. Time freights 19 and 20 carried through merchandise cars from Kansas City, St. Louis and Dallas to West Texas stations. The Alpine interchange with the Southern Pacific was not helped by S. P.'s 1924 acquisition of the El Paso and Southwestern, including the latter's line northeast from El Paso to the connection with the Rock Island at Tucumcari, New Mexico. But Kemper was missing few opportunities; in 1926 he worked out a scheme with the Missouri Pacific for joint routing of freight from Wichita east! The plan called for Orient switching within the Wichita area, and delivery to the Missouri Pacific in Wichita. MoPac gained the benefit of Orient sales efforts and Orient received a share in the revenue.

Interline freight revenues were boosted in February, 1925, when the ICC reaffirmed the plan, previously noted, to give the Orient a larger share of joint-tariff rates. In most cases, the Orient was to receive an extra 16% of its share or of the connecting line's share, whichever was smaller; the amount ran as high as 24% for the Fort Worth and Denver City and the Gulf, Colorado and Santa Fe. No increases were made in the Orient's share of joint rates with the Katy's subsidiary Wichita Falls and Northwestern or the little Clinton and Oklahoma Western.

A modern plant for treating timber was opened July 31, 1926, on eleven acres of high ground near Altus. The owners, Consumers Tie Service Company of Kansas City, planned commercial work eventually, but at first their entire output of creosoted crossties was to go to the Orient. The plant included its own narrow gauge switching track and a seven-ton gasoline locomotive.

At the end of 1926, Kemper allowed the \$10 per car "arbitrary" local revenue increase to lapse. But the railway was not yet able to meet all costs; trainmen were still receiving substandard wages, although

wages had been increased in 1925, at the time of a general raise for southwestern railway workers. The Brotherhoods opened wage negotiations in 1927, then called a strike for April 29, 1928; they had demanded annual increases totaling \$104,000 for Brotherhood-represented workers. The railroad offered \$62,000 per year in additional wages for these men and \$35,000 per year for others. Again the government arbitrated. This time a Presidential Emergency Board decided the Orient's offer was all that its finances justified. Kemper again talked "ability to pay."

The wage controversy was only one side of Orient labor relations. A few employees may have been out to see what they could squeeze out of the railroad, ignoring the consequences. Others took part in an employee traffic solicitation program which attracted much attention and brought more freight to the Orient.

It all seems to have started in one of the early issues of the *Orient Magazine*, which was begun by W. R. Lence, a Kemper assistant, and Wichita reporter H. C. Brady in January, 1925. Brady and Lence devised a slogan to be used by Orient men when paying bills by letter or check: "The Orient pays me. I pay you. When you ship or ride via Orient you help them, me and yourself."

The idea caught on. Orient employees began to realize that local merchants depended on their trade. And more, when the scheme began to show results, the railway's men saw that they could help in the fight for traffic. A slogan campaign in the *Orient Magazine* yielded "Satisfy Orient Shippers" as the keynote for the employee-solicitation campaign.

Schemes used varied widely but all had one theme: helping the Orient. Traveling Auditor Gene Gleason started a series of employee-paid advertisements in newspapers along the line, large display ads which urged readers to ship and travel Orient. Walter Anderson, on the San Angelo-Hamlin local freight run, spent his spare hours doing favors for Orient shippers in San Angelo. Conductor Allen, on the new San Angelo-Alpine motor train, gave a "lecture" to his passengers while crossing the Texas plains, including a description of the improvements in Orient service. Another motor car conductor, Ed Oates of the San Angelo-Texon one-car shuttle, began asking contractors at the booming new oil-town what labor they needed, and hiring men for them in San Angelo. A little thought, an hour or two of unpaid work here and there, and Oates' motor car carried new workers to Texon, at, of course, full fares.

The efforts were not confined to the Texas lines, and they included direct solicitation of shippers by employees during off-hours. Perhaps the most unusual program, however, was a plan of promotion that proved very effective. The man was conductor Oscar Ervin, then on the Altus-Chillieothe local freight, who had coined the slogan "Where Employees Care." His idea was to send personal letters to carload shippers whose cars were handled in his train, letting the shipper know of the progress of the car and telling him how important such shipments were to the Orient. The campaign was probably unique. It demonstrated without question that Oscar Ervin's train was giving careful service to Orient shippers, and it indicated that "Where Employees Care" and

"Satisfy Orient Shippers" were more than slogans. Conductor Ervin also made efforts to urge use of the Orient's through rates via Alpine and the Southern Pacific.

A letter to the Buick company dated March 1, 1926 is typical:

"Buick

"Flint, Mich.

"Gentlemen. I have in train your SP 61383 autos and have notified Howard Auto Co. Los Angeles Calif. by mail and thank you for another of your cars in behalf of our 1800 employes who depend on the Orient for bread.

"Our Flint 2/22 passed St. L. 2/25 Orient received 2/28—will or should deliver to SouPac 3/2 1030p at Alpine Texas. Our Management and Employes cater to you good Eastern shippers.

"Yours very truly

Oscar Ervin

Conductor."

Before operation was resumed on the damaged Mexican lines, the Mexican government made plans to extend the Chihuahua Division toward the Rio Grande. Seven carloads of rail reached Falomir in 1924; the Conchos bridge was open in 1924, and grading and bridges on the rest of the line had been installed by Stilwell's crews. Government aid here was a partial repayment of revolution damage. Once service was restored to Falomir, construction went ahead. By the spring of 1927 the twice-weekly mixed train was running to Pulpito, 96 miles east of Chihuahua, and a year later rails were laid to Ojinaga, on the Rio Grande. In January 1928, Congress authorized the Orient to bridge the Rio Grande at or near Presidio.

The Mountain Division was repaired by 1925, and trains ran two or three times a week from Creel to the Mexico Northwestern connection at Miñaca and return.

In the Fuerte Valley, 40 miles of new line were planned from Fuerte to the Choix River, east of Altillo. The construction proceeded as far as San Pedro, not quite halfway, beginning in 1926.

This left 199 miles from Creel to San Pedro in Mexico to be bridged, along with approximately 85 miles from Alpine to the Rio Grande. Six of the 199 miles west from Creel actually had track, but trains were not running between Creel and the never-used Sanchez station house. Completion of the Texas segment was to come shortly, but under Santa Fe control. For, in September, 1928, the Santa Fe acquired control of the Orient, and in August, 1929, the lines north of the Rio Grande were leased to the A. T. & S. F. and its subsidiary Panhandle and Santa Fe. Mexican lines passed out of Santa Fe hands and into separate operation.

The Santa Fe acquired \$3,700,000 of rolling stock with the Orient. In addition to the locomotives, there were 1782 freight cars, 31 passenger cars and 182 work and miscellaneous cars. Motor-car equipment for the new trains operating west of San Angelo was also included.

VIII. *The Santa Fe Takes Over.*

The Atchison, Topeka and Santa Fe purchase of the Orient lines was a happy one for nearly all concerned. The Orient's future was assured, for the Santa Fe had adequate resources to carry the Orient over difficult years. Santa Fe motive power and equipment were now available to help move the wheat crop, which had severely strained the Orient in all but the driest years. On the Santa Fe side, the Orient provided a cutoff from Kansas to west Texas and saved mileage, in many cases, over the previous shortest Santa Fe route. The threat of purchase by another large system was averted. And Orient-originated wheat, cattle and oil now would move "Santa Fe all the way."

The losers, of course, were other connections. The Santa Fe filed for cancellation of certain joint tariff agreements in 1930, and for substitution of routes giving the Santa Fe a longer haul.

But the Santa Fe never had seen any advantage to be gained from operating a railroad, or three separate railroads, in Mexico. The three Mexican divisions were sold to B. F. Johnston, owner of Mexico's largest sugar plantation and mill at Los Mochis; the sale took place in 1928, before integration of the lines northeast of the Rio Grande had begun. Johnston received 316 miles of railway, 95 miles of it new; he paid \$650,000 cash and gave the Santa Fe a mortgage for the balance of \$900,000. The sixteen locomotives and other equipment assigned to Mexico were included. Even at this price, the Santa Fe did well to sell the lines, in the light of their subsequent financial troubles.

Integration of the Orient's Wichita-to-Alpine route into the Santa Fe began in 1929 and has continued ever since. On August 1, 1929, the Atchison, Topeka and Santa Fe leased all remaining properties of the Kansas City, Mexico and Orient Railway, while the Panhandle and Santa Fe leased the Orient of Texas. The lines were assigned to the Atchison's Panhandle Division and P. & S. F.'s Slaton Division, respectively; as with the Orient, the dividing point was at Altus and the P. & S. F. had trackage rights north to Altus from the Red River.

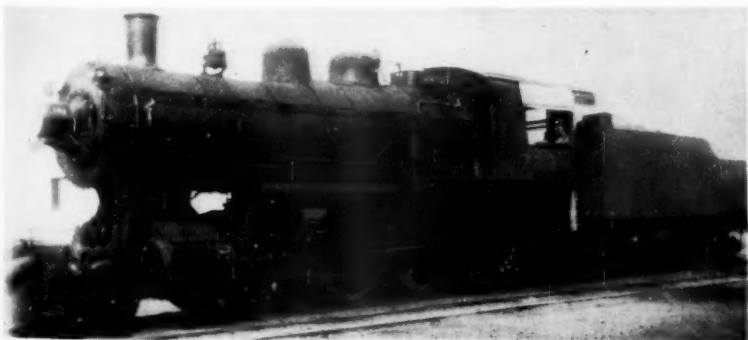
The Santa Fe then began work on two Texas extensions, using the Orient of Texas charter. Sixty-four miles of new construction brought rails to Sonora, a cattle town halfway between San Angelo and Del Rio on what was originally planned as Stilwell's only major branch line. The Sonora branch was opened on July 1, 1930. Four months later, the first train rolled into Presidio and the Rio Grande gap was finally closed.

The Presidio extension was first planned to parallel the Southern Pacific for $8\frac{1}{2}$ miles west of Alpine, over Paisano Pass. An agreement was made with the S. P., however, providing for joint use of 11.2 miles of S. P. track; remote control interlockings were installed just west of Alpine and at Paisano station where the new line curved south. Construction on the 73-mile Paisano-to-Presidio link was heavier than Orient standards. Ninety-pound rail was used, second-hand from the A. T. & S. F. main line, along with tie plates and some crushed rock ballast. Four steel girder spans and one 1200-foot viaduct were built, all at



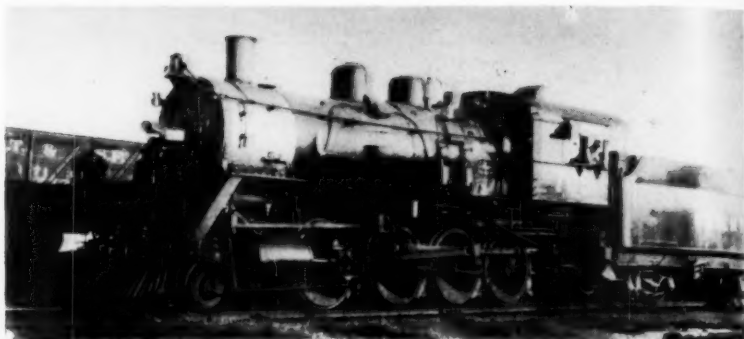
Courtesy of S. R. Wood

Orient #503. A. T. & S. F. #2558. As rebuilt with Walschaerts and piston valves.
Scrapped June, 1930.



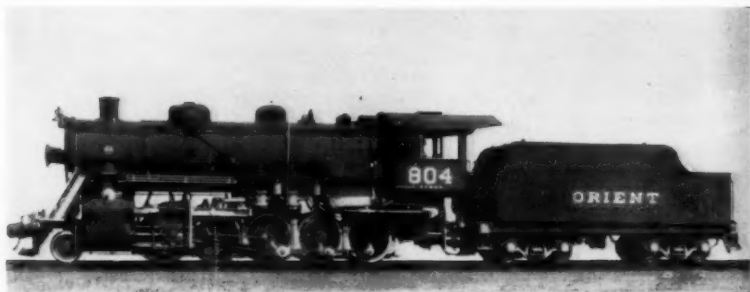
Courtesy of S. R. Wood

Orient #703. Brooks #4085, 1902. Ex-L. S. & M. S. Nos. 803-5803.
To A. T. & S. F. #2561. Scrapped 1933.



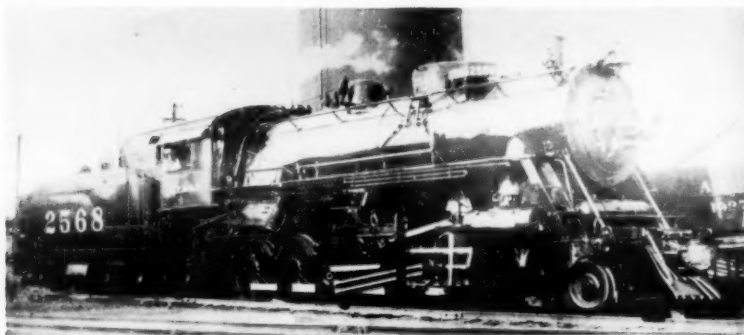
Courtesy of Robt. C. Schmeid

Orient #705, showing Bilger's variation of Walschaerts valve gear, designed to actuate the piston valves from the forward end. Note extreme length of radius rod and union link. Ex-L. S. & M. S. No. 810/834-5810 5834, a hybrid. Santa Fe #2563. Scrapped January, 1934.



Courtesy of Robt. C. Schmid

Orient #804. Baldwin #58574, 1925. Santa Fe #2568.



Courtesy of E. B. Kille

A. T. & S. F. #2568. Ex-Orient #804. Baldwin #58574, 1925. Topeka, Kans. 8-1944.

various crossings of Alamito Creek. The grade was held to 1% compensated.

An open deck pile trestle 1960 feet long spanned the Rio Grande to link the Panhandle and Santa Fe with Johnston's lines, now incorporated as the Ferrocarril Kansas City, Mexico y Oriente, S.A.

Unification of terminal operations soon took place at several key towns. The Wichita-San Angelo passenger train, after 14 years, returned to Wichita's union station on the other side of downtown. In Sweetwater, short connecting tracks were built so that the G. C. & S. F. could service all the system properties there; similar work in San Angelo put all local operations under Orient (now P. & S. F.) jurisdiction. G. C. & S. F. passenger trains had moved to Stilwell's two-story brick station in San Angelo even before the 1929 lease. The tie-treating plant also was absorbed by the Santa Fe. It was moved to Wellington, Kansas, in 1930, and Santa Fe creosoting facilities at Somerville, Texas, and Albuquerque were closed.

Meanwhile the Orient's rickety track was given a general overhaul. Untreated pile trestles across smaller rivers, which had often washed out in flash floods, were replaced with stronger, creosoted bridges; main river crossings were rebuilt. Ninety-pound relay rail was used to replace much of Stilwell's original 70-pound. The Orient was gradually brought up to Santa Fe standards for secondary main or key branch lines. Although the new owners did manage to antagonize a few people—for example, locomotive crews were not happy when the reflex water gauges on Orient locomotives were replaced by the hard to read boiler-glass variety—the general results of Santa Fe operation were considerably improved property and service.

The depression was weathered with little difficulty under Santa Fe control, although the effect on an independent K. C. M. & O. might well have been catastrophic. Sleeping car service was an early casualty of the lease as well as the depression. Through Dallas-San Angelo sleeping cars disappeared, as the Santa Fe route via Temple and Brownwood avoided giving most of the haul to the Texas and Pacific; a more direct route was available after the Santa Fe bought the Fort Worth and Rio Grande (Fort Worth to Menard, Texas) from the St. Louis-San Francisco in 1936. The Altus-San Angelo car also vanished shortly afterward and, by 1934, there were once more three daytime trains, the intermediate terminals (and layover points for any remaining through travelers) being Altus and San Angelo. All service was now by motor trains from Wichita to Alpine.

During the mid-thirties the Santa Fe changed the passenger schedule to give through "daytime" service from Wichita to San Angelo, taking about 17 hours for the 508 miles. This and the San Angelo-Alpine run were handled with motor trains, and the through run from Wichita to San Angelo has been called the longest gas-electric car run in the United States. The Sonora branch has had only mixed trains; Presidio had more frequent service at first, but soon the service on this newest extension was cut down to a tri-weekly mixed train. The Alpine motor was cut back to Fort Stockton around 1940 and a few years later

was taken off entirely, mixed trains providing all scheduled rail service west of San Angelo. Independent bus lines were now carrying the few local passengers in that area.

Several segments of duplicating track have been removed since 1930. First to go was the Santa Fe's Harper-Anthony, Kansas, section of the Hutchinson-Ponca City line. All trains used the Orient between these points. A similar move in 1937 saw Wichita-Englewood trains routed over the Orient from Wichita to Viola, 23 miles, and the elimination of Santa Fe track east from Viola to Mulvane. In 1938, slightly over a mile of Orient track in Sweetwater was scrapped and trains routed over the G. C. & S. F. Track from Anthony to Cherokee, Oklahoma, came up in 1942, during the Santa Fe's search for surplus branch lines that could become scrap metal. Trains were routed over existing Santa Fe lines through Kiowa, Kansas, when this 34-mile line was closed. More recently, the Wichita-San Angelo passenger train was routed through Mulvane and Wellington, so that it now uses no Orient track in Kansas.

The Kansas City, Mexico and Orient Railway ceased to exist corporately on June 30, 1941, when it was merged into the Atchison, Topeka and Santa Fe Railway. The Kansas City, Mexico and Orient of Texas, however, remains as a Santa Fe subsidiary. The Atchison owns all but nine shares of Orient of Texas stock (these shares are needed to qualify the Texas company's directors) and the latter is still leased by the Panhandle and Santa Fe.

Of the 70 locomotives that were acquired by the Atchison, 46 were on the roster at the time of the corporate merger and 41 on June 1, 1948. The number dwindled to 26 by April 1952, including 15 of the New York Central 2-8-0s, six ALCo 2-8-0s built under the Stilwell equipment trust agreement, and Kemper's five Baldwin 2-10-0s built in 1925. These 26, of course, vanished from the roster in the following two years as the Santa Fe system completed dieselization. Several locomotives of the original American Locomotive Company fleet of Consolidations have been sold to the Mexican lines of the Orient.

IX. *Operations in Mexico.*

The Santa Fe had no intention of going into the Mexican railroad business, but the Orient's Mexican lines fitted very nicely into the plans of Benjamin F. Johnston, owner of the United Sugar Company. United Sugar was the end product of thirty years of growth; its properties and subsidiaries covered over 100,000 acres, and the refinery at Los Mochis was the largest in Mexico. Johnston's local railroad, the Mexican Pacific, connected with the Pacific Division of the Orient at Los Mochis. Johnston knew Kemper well, and collaborated with Kemper, the Santa Fe officials and L. Roy Hoard, of the Mexico Northwestern Railway, to devise a plan which would make United Sugar independent of the Southern Pacific. Agreement was reached before the Santa Fe completed purchase of the Orient stock.

Before the Orient's lines east of Alpine were leased to the Santa Fe, Johnston's new company, Ferrocarril Kansas City, Mexico y Oriente, S.A., purchased the three divisions in Mexico. \$900,000 in new

bonds went to the parent Orient company, along with \$650,000 in cash put up by the Johnston interests. United Sugar received stock of the new railroad company for the \$650,000. Ten or fifteen million dollars had been pledged by New York financiers for construction of the San Pedro to Sanchez line up the west slope of the Sierra Madres. Johnston's interest in this new line was partly due to his wish to end dependence on the Southern Pacific of Mexico, which carried his sugar from San Blas to Nogales, and on its parent Southern Pacific Company. Johnston was one of the many large shippers who have had no love for the Southern Pacific colossus. A link across the Sierras meant a choice of routes north and east, and most possible routes involved the Santa Fe.

Close relations with the Mexico Northwestern were advisable because the Northwestern was the logical agency to administer the new construction work. Northwestern president Hoard had used local labor and Mexican supervisory employees in reconstructing parts of the Northwestern during and after the revolution; the work was done economically and Hoard's relations with the Mexican government were good. The advantages of using Mexicans, rather than outsiders, for all possible jobs were clear to all parties concerned. Hoard estimated a construction cost of about \$10,000,000 on this basis.

But before any work was done, the depression arrived. Johnston's New York associates were not able to produce the ten million, the bottom dropped out of the sugar market and Johnston himself was hit hard. All talk of construction was forgotten and the next problem was operation of three disconnected segments of railway, two of which were almost devoid of traffic.

Hoard and Johnston saw that the quickest way to economize was to combine the Oriente and the Northwestern in all but name. The Oriente local management in Chihuahua, headed by Don Juan F. Treviño, was discharged; Mexico Northwestern officials added the Oriente's problems to their own and the staff was combined as far down the line as possible. A local manager was sent to Los Mochis, but the Chihuahua and Sierra divisions were run from the Northwestern offices in the Sauer Building in downtown Ciudad Juarez. Oriente shops at Miñaca were dismantled, and the operating terminal was moved east to La Junta. The general office, station and shop in Chihuahua were closed; their work was turned over to the Northwestern, and Northwestern locomotives took over all local switching.

Hoard did not plan to run the Oriente as a charity. He personally took no additional salary. The Northwestern, however, found advantages in joint tariffs and in the economies of combined management. And the Northwestern needed any benefits it could get. The lumber industry, mainstay of the railway, was failing; high U.S. tariffs worked to restrict Chihuahua lumber to the El Paso area and to the limited markets in Mexico. Mills along the Oriente's Sierra Division produced very little and the Chihuahua Division was not doing much better. Both systems stayed in business, but neither the Northwestern nor the Oriente made any money during the 1930s; what little was earned over minimum operating expenses was put back into maintenance.

Conditions gradually improved during the decade. The weekly mixed train to Creel became twice, then three times weekly. Chihuahua Division service stayed at two or three trains a week, handling a little mining traffic and an occasional car routed via the Presidio bridge. The always profitable Pacific Division was offering low tariffs to its owner and principal customer but still turned in a little money; motor cars replaced most of the scheduled mixed train service to provide better passenger connections with the Southern Pacific of Mexico at San Blas.

Benjamin F. Johnston died in March, 1937, while on a leisurely trip around the world. The Los Mochis properties passed into the hands of his widow; his son, Sherwood Johnston, became manager of the company. Railway operations at first were not affected. Then Mrs. Johnston and her advisers began to feel that the railway might become a liability and started looking for a buyer.

Lázaro Cárdenas, president of Mexico from 1934 to 1940, was pushing programs of land distribution and of reducing foreign interests in Mexico, and United Sugar was caught by both of these in 1938. Forty thousand acres of company land, of which 24,000 acres were sugar cane property, were expropriated on April 12, 1938. The following February, 35,800 acres were distributed as "ejidos" to village farmers and another 15,000 acres became federal property. Still another 20,000 acres were lost a few days later. This put United Sugar, one of Mexico's few mechanized agricultural properties, in the unfortunate position of having to buy cane from the new owners of its old plantation lands.

The importance of United Sugar can be seen from a few statistics; in 1938, the company and its subsidiaries employed 4000 workers, produced half a million tons of sugar, and owned lands worth eight to ten million dollars.

Mexico's Secretary of the Treasury was authorized to take the next step in October, 1939, by opening negotiations for purchase of the Kansas City, Mexico y Oriente from the Johnston interests. The transfer was made in the spring of 1940. Cárdenas first planned to ignore the bond issue, but was persuaded to settle with the Santa Fe for 550,000 pesos, which at that time was \$92,350—a settlement of ten cents on the dollar. Again, the link between the Sierra and Pacific divisions came in for much attention. Cárdenas hoped to complete the railway in 1940, and his successor Manuel Ávila Camacho, also promised quick construction. But none of these promises yielded any new track.

Oriente operations were promptly separated from the Northwestern. Don Juan Treviño, who had helped arrange the sale to the government, was reinstated as local manager; he reopened the Chihuahua station and shop and bought a second-hand private car, renaming it the "Topolobampo." Oriente trains continued to use the La Junta facility jointly with the Northwestern, and La Junta is still Sierra Division headquarters. The government bought the Northwestern's La Junta-Miñaca branch and Miñaca became just another way station.

Since 1940, the Oriente has been operated as a trio of back-country railroads whose mixed trains have the usual Mexican disregard for the timecard. The Chihuahua Division's interchange traffic at Ojinaga has increased, although tri-weekly service is still adequate on the Santa Fe

side of the international bridge. Schedules in Mexico have at times included a tri-weekly motor car or an extra twice-weekly mixed, but the basic service is a mixed train leaving Chihuahua Monday, Wednesday and Friday for the 168 miles to Ojinaga, a trip which takes nine hours by the schedule and twelve to fifteen hours actual running time. The train returns from Ojinaga the following day.

The Sierra Division sees much more traffic than it did in the 1930s. Local lumber mills at such towns as Sigoyna and San Juanito now can produce pine for the El Paso market, thanks to the devalued peso and inflated prices north of the border. (The same boom, plus mining traffic, pushed Mexico Northwestern monthly gross revenues in 1946 to levels above annual gross in the 1930s.) A tri-weekly mixed train connects with the Northwestern at La Junta and makes its way to Creel, 74 miles, in about eight hours. The timecard calls for 4½ hours, but local switching slows the train down and it no longer meets the eastbound Northwestern passenger run. By the time Oriente #1* is back in La Junta, Northwestern #1 has been gone for hours and the sprinkling of through passengers use a rattling, second-class bus to Cuauhtémoc and Chihuahua.

Pacific Division motor car service was a casualty of the paved road now linking Los Mochis and San Blas. Oriente trains between these towns run on a nominal tri-weekly schedule, while Topolobampo sees a train each Monday. The Friday mixed run regularly goes to Fuerte but runs over the newest 15 miles of track to San Pedro only if traffic requires, a schedule which indicates no great volume of year-round business.

Fuerte Valley agriculture is centered around Los Mochis. The United Sugar mill works around the clock for six months of the year, and most of the product goes to San Blas over the Orient. Tomatoes and other vegetables move to United States consumers all winter, in a steady stream of refrigerator cars, which also are routed via San Blas and north to the Nogales gateway. This freight traffic keeps the Pacific Division and its small fleet of second-hand locomotives busy for at least part of the year. The Topolobampo train carries some mixed freight, and brings fuel oil which is unloaded from coastal ships at the small dock that was to become "Port Stilwell." Topolobampo itself has become a typical hillside fishing village, covering two of the hills on the north side of the harbor. But at sunset it is easy to see why the brush-covered hills, rocky shores and deep harbor so impressed Albert Kinsey Owen and Arthur Stilwell.

Passengers in the Fuerte Valley have deserted the Orient for a system of buses that provide surprisingly frequent service from Los Mochis to Topolobampo and as far northeast as Choix, beyond the end of track. The Topolobampo train carries an ancient, battered coach; the

*: Odd numbers were originally used for westbound Orient trains and even numbers for eastbound, according to standard railroad practice. The Mexico train numbers were reversed to agree with those of the Mexico Northwestern, whose train #1 starts west from Juarez, turns south, and is traveling in an easterly direction from La Junta to Chihuahua.

caboose on the San Blas run can accommodate a few passengers on straw seats that might well have come from a coach of an earlier era. But the trains are more like way freights than are the trains of the Chihuahua and Sierra Divisions, and passengers are a rarity.

The Mexican government management has made some attempts to keep the railway in passable condition. Chihuahua Division track received two miles of new rail west of San Sostenes, in 1950 or 1951; ballast was not used, so very likely the new track will develop kinks and list a little to one side in the manner of the other 166 miles of track between Chihuahua and Ojinaga. Sierra Division track is in better condition. Tie replacements on both divisions seem to have been adequate. The Pacific Division looks more like a country short line, as the Fuerte Valley climate is kinder to weeds.

Equipment used comes from a wide variety of sources. The original sixteen Orient locomotives have vanished, but purchases from the Santa Fe have included at least three K. C. M. & O. 2-8-0s of the 200 class and six Consolidations of older series.* Some motive power appears to be from the National of Mexico and the stubby wood coaches on the Sierra and Chihuahua Divisions have "N de M" embossed on the hardware; the coaches once had electric lights, but today one or two kerosene lamps suffice for after dark.

The long promised Pacific extension was again discussed in 1943 as a war measure, but the job of building major facilities in Topolobampo helped kill this prospect of realizing Arthur Stilwell's dream. And Miguel Alemán made the usual campaign promise in 1946. Recent railway construction in Mexico has been extensive, and the Orient's completion has been again suggested by Adolfo Ruiz Cortines, since he took office as President of Mexico in 1952. Meanwhile, the Ferrocarril Kansas City, Mexico y Oriente, still decades ahead of North Mexico's development, hauls what traffic originates along the way or can be routed over the Ojinaga-Presidio bridge.

X. *What Lies Ahead?*

Two links remain open today in Arthur Stilwell's planned Kansas City, Mexico and Orient Railroad. Kansas City and Wichita are connected adequately by the Santa Fe and others, and the Orient, particularly in Kansas, is thoroughly integrated with the Santa Fe system. The other gap, in the Sierra Madres, is kept open by Mexico's shortage of capital and slow industrial development.

What, then, is the future of the Orient? Local traffic should gradually increase in Texas and Mexico. Population of the southwest is increasing, and cities and towns like San Angelo and Alpine share this growth. Mexico is industrializing as fast as her resources, capital and temperament permit. As more land is irrigated in both countries and as more mines are opened in Mexico, Orient carloadings should show a healthy rise.

*: Santa Fe 2537, 3539 and 2540, formerly Orient 203, 205 and 206; 703, 780, 788, 814, 819 and 821. There may have been others.

Completion of the scant two hundred miles from Sanchez to Pacific Division rails must come if the mineral resources of the Barranca de Cobre country are to be opened. The Barranca country's vast canyons are now dotted with occasional Tahumara villages and small hand-worked copper mines. Its scenery is magnificent but is inaccessible to the average traveler; the only practical access route is the Orient grade west from Sanchez, which is more or less usable as a road for about fifty miles. If North Mexico is to be developed economically even to the level of the El Paso area, the Barranca country resources are probably the best means. But for all development there must be capital and transportation. And no other means of transportation would link Chihuahua and the Pacific and open the Barranca region as effectively as the completed Kansas City, Mexico and Orient.

But this does not mean eventual fulfillment of Arthur Stilwell's dream. The Orient is a key railroad line in western Oklahoma and Texas. The completed Mexican Orient can be an even more vital part of Mexico's rail net. Through traffic between Kansas City, Topolobampo and Asiatic or Australian ports is another matter. Conditions in Mexico are not such as to encourage American capital to develop the port of Topolobampo; Mexican railway practices do not indicate that a partly Mexican route could compete with existing transcontinental railways in speed. The Panama Canal is now available for slower freight. And the Santa Fe is not likely to encourage revival of the Orient plan when trans-Pacific freight can go to Los Angeles, Oakland or San Diego on Santa Fe rails.

The likelihood that this part of the original idea will come about is slight. But many a town along the railway owes its prosperity and its very existence to Arthur Stilwell's belief that he could build to the Pacific; many a village in Mexico has no link with the outside other than the tri-weekly mixed train. As a transcontinental railroad, the line was a failure. As local railroads, few lines are more important to the areas they serve than the Kansas City, Mexico and Orient.

APPENDIX I

The Man Who Built the Orient Railroad.

Arthur Edward Stilwell, last of America's great railroad builders, was certainly one of the most unusual men to become important in the railroad field. He was a natural salesman and promoter, and a bit of a mystic; many of his ideas came to him as dreams or "hunches." And Arthur Stilwell was not the tycoon type. Men like Hill and Harriman, Commodore Vanderbilt and Jay Gould were fundamentally railroad builders who saw the chance to gain personal power through railroads. Stilwell gained a measure of wealth and power through his railroads, though the power was short-lived, but that was not his guiding objective. He chose his routes according to the needs of his adopted home, Kansas City; he fought to reduce rates, not to raise them; his land promotion schemes permitted no deception or trickery, and he refused to take any promoter's compensation for selling stocks and bonds of his railroads. In the course of his career he made many friends and few enemies, while his personal integrity appears to have been unquestioned.

7

Born in Rochester, New York, in 1859, Arthur Stilwell was the grandson of Hamblin Stilwell, who built portions of the Erie Canal and New York Central Railroad, was a founder of the Western Union Telegraph Company and was also an early mayor of Rochester. Young Arthur was exposed to railroading early, as he accompanied his grandfather on business trips to New York that included visits to Commodore Vanderbilt. But his salesman's instinct was most prominent in his early business life. One venture involved printing timetables for several southern railroads at no cost to the companies, selling advertising space in the timetables to more than pay expenses. As Stilwell received passes from his contracting railroads and could have free meals and lodging at hotels which advertised in the timetables, he found he could use his spare time to double as a traveling salesman and count most of his sales income as clear profit.

Stilwell later turned to the insurance business, first as an agent, then as a designer of new policies. But he had the idea that he could go West and build a railroad—and he gave up his insurance connections on the strength of a “hunch” that he could build a line from the Midwest to a southern port, reducing costs of exporting farm produce and helping western farmers. He organized the Guardian Trust Company in Kansas City as a financial start, using \$25,000 of personal capital, raising about \$180,000 in Kansas City from persons he had met through insurance contacts, and selling enough Guardian securities in Philadelphia to accumulate two-thirds of a million dollars.

Guardian began by building small houses, but Stilwell became a railroad promoter a few months later when E. L. Martin, one of the key men in the Guardian Trust management, told Stilwell that he had a franchise for a railroad on the east and south sides of Kansas City. The franchise had nearly expired but Stilwell raised another \$666,000, all in Philadelphia, and construction began on the Kansas City Suburban Belt. As the Belt developed, it built into downtown to a new \$65,000 station at the foot of Wyandotte, which Stilwell named “Grand Central Station.” Extensions were made to the West Bottoms and to Independence; the railway built Fairmount Park to stimulate business on the Independence line. Soon the Kansas City Suburban Belt and its subsidiaries had a 24-mile main line and 60 miles of track.

Then Stilwell and Martin planned a railway south to the Pittsburg and Joplin mining district. New York brokers wanted 20% commission for placing securities so Stilwell sold the stock himself, as he had done with the Belt. At the age of 32, Arthur Stilwell became president of the new line, now known as the Kansas City, Pittsburg and Gulf, and his railway was on its way to open water.

Foreign capital entered the picture when Stilwell went to Holland to raise money during the panic of 1893. Finding an old acquaintance, John de Geojien, he made de Geojien Guardian's Netherlands agent and raised over two million dollars by selling stock, a notable achievement indeed for 1893. The Dutch influence not only produced Dutch settlers along the way, but accounted for at least two town names: Mena, a pet

name for Queen Wilhelmina, and De Queen, the nearest approach an American tongue could make to De Geojien.

Two incidents here shed some light on the character of Arthur Stilwell. The Dutch backed down on the stock sale when William Jennings Bryan was nominated in 1896 on a free-silver ticket; the effect of a free-silver policy in those gold-standard days would have been quite unsettling to United States currency and the Dutch refused to take that risk. Stilwell looked over his list of prominent stockholders and assigned \$2,200,000 of notes, in \$75,000 certificates, to several of them, basing the proposed subscription on one of his "hunches." He was making a speechmaking tour for McKinley at the time, and promoted the notes by personal visits between speeches. The method sounds most unorthodox but it worked. McKinley was elected, the Dutch took the stock, noteholders were paid and made a 21% profit, and the K. C. P. & G. was saved from receivership.

The Dutch also doubted Stilwell's word that he had taken no compensation for promoting the European stock sales, and sent a committee to audit the books. The audit showed Stilwell correct and two Dutch officials of the K. C. P. & G., to make amends, turned over \$40,000 from their stock profits to Stilwell as a personal gift. This was used to build "Bethlehem Night School," a mission and school in Kansas City's packing house slum district. Four hundred children were educated and helped by the school in following years.

A Gulf terminal was needed and the Houston, East and West Texas, which has since become part of the Southern Pacific system, was then available. But Stilwell was wary of the H. E. & W. T.'s terminal of Galveston, and built to Lake Sabine instead; a new city, Port Arthur, grew on the lowlands and became the port. The Port Arthur Channel to the open sea was built by the railway and later taken over and maintained by the government. Port Arthur remains the terminal of the Kansas City Southern, although acquisition of the Louisiana and Arkansas has also given the K. C. S. an entrance over its own rails to New Orleans.

Another example of Stilwell's personal method of financing a railroad led to near-disaster when he contracted for equipment on verbally guaranteed credit from George Pullman, who had received his start in business from Hamblin Stilwell. George Pullman died before papers were signed and the K. C. P. & G.'s mortgage contract prohibited further bonds; a second mortgage was out of the question in view of K. C. P. & G. credit standing. An exchange plan was developed, permitting the railway to exchange \$500 in stock and \$750 in bonds for each \$1000 bond turned in, then reselling the remaining \$250 in bonded debt to raise cash. Philadelphia and Dutch bondholders agreed. A five-year voting trust was established to control the K. C. P. & G. But, guessing wrong on personalities, Stilwell approved the inclusion of John W. "Bet-a-Million" Gates, Thalmann, and Edward Harriman on the voting trust. In April of 1899, the K. C. P. & G. was thrown into a receivership which Stilwell maintained was entirely unnecessary, based on a small

printing bill; in February, 1900, Gates, Thalmann and Harriman voted Stilwell out of the presidency of the bankrupt railway. The quick vacation to Virginia and the testimonial dinner followed. A few weeks later, Stilwell's rebound from the K. C. P. & G. loss had started the planning for the Kansas City, Mexico and Orient.

The case of the K. C. P. & G. shows as well as the Orient that Arthur Stilwell, though a promoter and visionary and an amazing salesman, was not a construction engineer. The former was not well laid out and its construction was light. During the Gates-Harriman administration some improvement was made in the physical plant, but even then the Kansas City Southern, as the railway was known after receivership, was far from the K. C. S. of fifty years later. Either Stilwell was unaware of the high operating costs of a curving, climbing, poorly-built railroad and of the high maintenance cost of light trestle-work, or he was gambling on increased traffic to permit such rebuilding.

Stilwell considered that he had been forced out of both the K. C. P. & G. and the Orient by "Wall Street" in general and by Harriman in particular. This may well have been true of the K. C. P. & G. The Orient failure can be readily traced to factors beyond the control of either Harriman or Wall Street: the Mexican revolution and the World War.

After 1911, Arthur Stilwell went into semi-retirement. He was injured in an elevator accident a few months after the Orient went into its first receivership, and his health was broken. Several books by Stilwell were published between 1912 and 1921, however. *Cannibals of Finance* gives his side of the case against "Wall Street" as he saw it; the rest expound various phases of his philosophies. Stilwell was a man with definite mystical tendencies along with a strong religious faith. For most of his life he was a Christian Scientist; his private cars on both the K. C. P. & G. and the Orient were equipped with pipe organs for playing hymns at Sunday religious services. (The car on the former underwent considerable change to fit it to the tastes of John Gates.) But the doctrines of Christian Science do not explain his entire philosophy. He acted on "hunches," and many biographical comments have said that he claimed to be guided by "brownies" at critical times in his life. Perhaps so. But neither his published books nor his autobiographical series, "I Had a Hunch," in the *Saturday Evening Post* shortly before his death makes any mention of brownies, and it is quite possible that Stilwell made some reference to Divine guidance which has been misinterpreted by other writers.

Indeed, if Arthur Stilwell was guided by brownies, these elves did an effective job. Stilwell's Kansas City, Pittsburg and Gulf became a first class railroad; his Kansas City, Mexico and Orient was bought by the Santa Fe a few months before his death, and has continued to play an important part in the life of the areas it serves. And his beloved Kansas City is richer for both.

Locomotives of the Kansas City, Mexico & Orient Railroad.

Note: Acknowledgement, with thanks, is made to Prof. S. R. Wood for the use of much material in this roster, as presented in Bulletin #75. Details as to the many changes in cylinders and valve gear may be found in that bulletin. Original dimensions are shown, insofar as they are known.

| KCMO No. | ATSF No. | Builder | C/N | Date | Type | Cyls. | DD | Weights | | Disposition |
|-------------|-------------|---------|-------|------|-------|--------|-----|---------|--------|-------------|
| | | | | | | | | OD | Total | |
| 1 | .... |  |  |  | 2-6-0 | | | | | No data |
| 2 | .... |  |  |  | 2-6-0 | | | | | No data |
| 3 | .... | Porter | | | 2-6-0 | 18x24 | 50 | 102300 | 117000 | O-Mex 1929 |
| 4 | .... | BLW | 7672 | 1885 | " | 17x24 | 48 | 80000 | | O-Mex 1929 |
| 5 | .... | R. I. | | | " | 18x24 | 55 | 81000 | 95000 | O-Mex 1929 |
| 6 | .... |  |  |  | 4-4-0 | " | 55 | 55000 | 85000 | O-Mex 1929 |
| 7 | .... |  |  |  |  |  |  |  |  | No data |
| 8 | .... |  |  |  | 2-6-0 | 18x24 | 55 | 92200 | 107300 | O-Mex 1929 |
| 9 | .... |  |  |  |  |  |  |  |  | O-Mex 1929 |
| 10 | .... |  |  |  | 2-6-0 | 18x24 | 55 | 93300 | 111600 | O-Mex 1929 |
| 11 | .... | Dickson | | | 4-4-0 | 20x26 | 69 | 90000 | 135000 | Sc 1925 |
| 12 | .... |  |  |  | 4-6-0 | 19x24 | 55 | 92000 | 124000 | O-Mex 1929 |
| 13 | .... |  |  |  |  |  |  |  |  | No data |
| 14 | .... | BLW | 10569 | 1890 | 0-6-0 | 19x24 | 51¼ | 97000 | 97000 | Sc 1928 |
| 15 | .... | BLW | 11988 | 1891 | " | " | 51¼ | 97000 | 97000 | * |
| 16 | .... | BLW | 9784 | 1889 | " | " | 51¼ | 97000 | 97000 | * |
| 17 | 2500 | P'burgh | 46538 | 1909 | " | 19x26 | 51 | 138500 | 138500 | Sc 7-33 |
| 18 | 2501 | " | 46539 | 1909 | " | " | 51 | " | " | Sc 5-33 |
| 19 | 2502 | " | 46540 | 1909 | " | " | 51 | " | " | Sc 9-33 |
| 20 | 2503 | " | 46541 | 1909 | " | " | 51 | " | " | Sc 7-34 |
| 21 | 2504 | Schen | 27127 | 1903 | 2-8-0 | 23x30 | 51 | 196000 | 226400 | Sc 12-34 |
| 22 | 2505 | " | 27129 | 1903 | " | " | 51 | " | " | Sc 12-33 |
| 23 | 2506 | " | 27133 | 1903 | 2-8-0 | 23x30 | 51 | 196000 | 226400 | O-Mex 8-46 |
| 51 | 2507 | " | 44061 | 1907 | " | 23½x32 | 63 | 215500 | 239000 | I/S 1954 |
| 52 | 2508 | " | 44071 | 1907 | " | " | 63 | " | " | I/S 1954 |
| 53 | 2509 | " | 45187 | 1908 | " | " | 63 | " | " | I/S 1954 |
| 54 | 2510 | " | 45194 | 1908 | " | " | 63 | " | " | I/S 1954 |
| 55 | 2511 | " | 45198 | 1908 | " | " | 63 | " | " | I/S 1954 |
| 56 | 2512 | Brooks | 47005 | 1910 | " | " | 63 | " | " | So 9-7-54 |
| 57 | 2513 | " | 47011 | 1910 | " | " | 63 | " | " | Sc 1-9-52 |
| 58 | 2514 | " | 47012 | 1910 | " | " | 63 | " | " | So 9-7-54 |
| 59 | 2515 | " | 47015 | 1910 | " | " | 63 | " | " | Sc 2-26-52 |
| 60 | 2516 | " | 47018 | 1910 | " | " | 63 | " | " | I/S 1954 |
| 61 | 2517 | " | 47022 | 1910 | " | " | 63 | " | " | Sc 1940 |
| 62 | 2518 | Schen | 45192 | 1908 | " | " | 63 | " | " | I/S 1954 |
| 63 | 2519 | " | 44068 | 1907 | " | " | 63 | " | " | So 8-25-54 |
| 64 | 2520 | Brooks | 47008 | 1910 | " | " | 63 | " | " | Sc 1-9-52 |
| 65 | 2521 | Schen | 45384 | 1908 | " | " | 63 | " | " | I/S 1954 |
| 66 | 2522 | Brooks | 47016 | 1910 | " | " | 63 | " | " | See end |
| 67 | 2523 | Schen | 45389 | 1908 | " | " | 63 | " | " | I/S 1954 |
| 68 | 2524 | Brooks | 47006 | 1910 | " | " | 63 | " | " | So 9-9-54 |
| 69 | 2525 | Schen | 44055 | 1907 | " | " | 63 | " | " | So 9-9-54 |
| 101 | .... | Cooke | 28581 | 1903 | 2-6-0 | 20x26 | 62 | 146000 | 166000 | Sc 1923 |
| 102 | .... | " | 28582 | 1903 | " | " | 62 | " | " | * |
| 115 | .... |  |  |  | 2-8-0 | 20x24 | 51 | 137600 | 152200 | O-Mex 1929 |
| 116 | .... |  |  |  | " | 20x26 | 57 | 130000 | 146000 | O-Mex 1929 |
| 117 | .... |  |  |  | " | " | 57 | " | " | O-Mex 1929 |

(In the following series, 126-156, some cylinders were changed to 21¼ x 28)

| | | | | | | | | | | |
|-----|------|-------|-------|------|-------|-------|----|--------|--------|------------|
| 126 | .... | Cooke | 38451 | 1906 | 2-6-0 | 20x28 | 63 | 146000 | 168000 | * |
| 127 | .... | " | 38452 | 1906 | " | " | 63 | " | " | * |
| 128 | .... | " | 38453 | 1906 | " | " | 63 | " | " | * |
| 129 | .... | " | 41227 | 1907 | " | " | 63 | " | " | O-Mex 1929 |

| KCMO ATSF | | Builder | C/N | Date | Type | Cyls. | DD | Weights | | Disposition |
|-----------|------|---------|-------|------|------|-------|----|---------|-------|-------------|
| No. | No. | | | | | | | OD | Total | |
| 130 | 2526 | " | 41228 | 1907 | " | 63 | " | " | " | Sc 1943 |
| 131 | .... | " | 41229 | 1907 | " | 63 | " | " | " | O-Mex 1929 |
| 132 | 2527 | " | 41230 | 1907 | " | 63 | " | " | " | Sc 1939 |
| 133 | 2528 | " | 41231 | 1907 | " | 63 | " | " | " | Sc 5-40 |
| 134 | 2529 | " | 41232 | 1907 | " | 63 | " | " | " | Sc 5-40 |
| 135 | 2530 | " | 41233 | 1907 | " | 63 | " | " | " | Sc 10-26-49 |
| 136 | .... | " | 41234 | 1907 | " | 63 | " | " | " | * |
| 137 | .... | P'burgh | 44195 | 1907 | " | 63 | " | " | " | * |
| 138 | .... | " | 44196 | 1907 | " | 63 | " | " | " | * |
| 139 | .... | " | 44197 | 1907 | " | 63 | " | " | " | O-Mex 1929 |
| 140 | .... | " | 44198 | 1907 | " | 63 | " | " | " | * |
| 141 | .... | " | 44199 | 1907 | " | 63 | " | " | " | * |
| 142 | .... | " | 44200 | 1907 | " | 63 | " | " | " | * |
| 143 | .... | " | 44201 | 1907 | " | 63 | " | " | " | * |
| 144 | .... | " | 44202 | 1907 | " | 63 | " | " | " | * |
| 145 | 2532 | " | 44203 | 1907 | " | 63 | " | " | " | Sc 8-47 |
| 146 | .... | " | 44204 | 1907 | " | 63 | " | " | " | O-Mex 1929 |
| 147 | .... | " | 44205 | 1907 | " | 63 | " | " | " | * |
| 148 | .... | " | 44206 | 1907 | " | 63 | " | " | " | * |
| 149 | 2533 | " | 44207 | 1907 | " | 63 | " | " | " | Sc 8-40 |
| 150 | .... | " | 44208 | 1907 | " | 63 | " | " | " | * |
| 151 | .... | " | 44209 | 1907 | " | 63 | " | " | " | * |
| 152 | .... | " | 44210 | 1907 | " | 63 | " | " | " | * |
| 153 | .... | " | 44211 | 1907 | " | 63 | " | " | " | * |
| 154 | 2531 | " | 44212 | 1907 | " | 57 | " | " | " | Sc 2-21-51 |
| 155 | 2534 | " | 44213 | 1907 | " | 63 | " | " | " | Sc 2-39 |
| 156 | .... | " | 44214 | 1907 | " | 63 | " | " | " | O-Mex 1929 |

(Nos. 201 to 302, cylinders originally 22" x 30")

| | | | | | | | | | | |
|-----|------|---------|-------|------|--------|-------|----|--------|--------|-----------------|
| 201 | 2535 | P'burgh | 46533 | 1909 | 2-8-0 | 23x30 | 55 | 197000 | 233000 | To 0-8-0, 1932. |
| 202 | 2536 | " | 46534 | 1909 | " | 22x30 | 55 | 185000 | 212000 | Sc 12-2-51 |
| 203 | 2537 | " | 46535 | 1909 | " | 23x30 | 55 | 197000 | 233000 | O-Mex 1948-51 |
| 204 | 2538 | " | 46536 | 1909 | " | " | 55 | " | " | O-Mex 3-21-49 |
| 205 | 2539 | " | 46537 | 1909 | " | " | 55 | " | " | O-Mex 1948-51 |
| 206 | 2540 | " | 48636 | 1911 | " | " | 55 | " | " | O-Mex 11-47 |
| 207 | 2541 | " | 48637 | 1911 | " | 22x30 | 55 | 185000 | 212000 | Sc 11-3-49 |
| 208 | 2542 | " | 48638 | 1911 | " | 23x30 | 55 | 197000 | 233000 | I/S 1954 |
| 209 | 2543 | " | 48639 | 1911 | " | 22x30 | 55 | 185000 | 212000 | Sc 11-17-48 |
| 210 | 2544 | " | 48640 | 1911 | " | " | 55 | " | " | Sc 12-22-48 |
| 211 | 2545 | " | 48641 | 1911 | " | " | 55 | " | " | Sc 1-48 H-M |
| 212 | 2546 | " | 48642 | 1911 | " | 23x30 | 55 | 197000 | 233000 | I/S 1954 |
| 213 | 2547 | " | 48643 | 1911 | " | 22x30 | 55 | 185000 | 212000 | O-Mex 2-1-50 |
| 214 | 2548 | " | 48644 | 1911 | " | 23x30 | 55 | 197000 | 233000 | So 9-24-54 |
| 215 | 2549 | " | 48645 | 1911 | " | " | 55 | " | " | So 3-25-53 |
| 251 | 2550 | Cooke | 38454 | 1906 | " | 23x30 | 57 | 184000 | 206000 | Sc 4-39 |
| 252 | 2551 | " | 38455 | 1906 | " | " | 57 | " | " | So 3-31-53 |
| 301 | 2552 | " | 38446 | 1905 | " | " | 57 | 197000 | 222000 | I/S 1954 |
| 302 | 2553 | " | 38447 | 1905 | " | " | 57 | " | " | So 2-25-52 |
| 401 | 2554 | BLW | 48056 | 1918 | 2-10-0 | 25x28 | 52 | 180000 | 197900 | Sc 8-34 |
| 402 | 2555 | BLW | 48135 | 1918 | " | " | 52 | " | " | Sc 9-30 |
| 403 | 2556 | BLW | 48139 | 1918 | " | " | 52 | " | " | Sc 10-34 |
| 501 | 2557 | Cooke | 38448 | 1906 | 4-4-0 | 19x26 | 69 | 96000 | 123000 | Sc 6-30 |
| 502 | .... | " | 38449 | 1906 | " | " | 69 | " | " | * |
| 503 | 2558 | " | 38450 | 1906 | " | " | 69 | " | " | Sc 6-30 |
| 504 | .... | " | 41225 | 1907 | " | " | 69 | " | 140000 | * |
| 505 | .... | " | 41226 | 1907 | " | " | 69 | " | " | * |
| 701 | 2559 | Brooks | 3885 | 1901 | 2-8-0 | 21x30 | 63 | 162000 | 180500 | Sc 12-33 |
| 702 | 2560 | " | 4075 | 1902 | " | " | 63 | " | " | Sc 12-33 |
| 703 | 2561 | " | 4085 | 1902 | " | " | 63 | " | " | Sc 12-33 |

| RCMO ATSF | | Builder | C/N | Date | Type | Cyls. | DD | Weights | | Disposition |
|-----------|------|---------|-------|------|--------|-------|----|---------|--------|-------------|
| No. | No. | | | | | | | OD | Total | |
| 704 | 2562 | " | 27110 | 1903 | " | " | 63 | " | " | Sc 12-33 |
| 705 | 2563 | " | 27113 | 1903 | " | " | 63 | " | " | Sc 1-34 |
| 706 | 2564 | " | 27117 | 1903 | " | " | 63 | " | " | Sc 10-30 |
| 801 | 2565 | BLW | 58571 | 1925 | 2-10-0 | 25x30 | 57 | 226000 | 253600 | So 7-31-53 |
| 802 | 2566 | BLW | 58572 | 1925 | " | " | 57 | " | " | I/S 1954 |
| 803 | 2567 | BLW | 58573 | 1925 | " | " | 57 | " | " | I/S 1954 |
| 804 | 2568 | BLW | 58574 | 1925 | " | " | 57 | " | " | I/S 1954 |
| 805 | 2569 | BLW | 58575 | 1925 | " | " | 57 | " | " | I/S 1954 |

*Sources of the Motive Power
Sources.*

| Nos. | |
|-------|---|
| 1-3 | Unknown. |
| 4 | Originally G. C. & S. F. Nos. 53 and 302. |
| 5-13 | Unknown. |
| 14-16 | Originally W. N. Y. & P. Nos. 81, 87, and 76, respectively. P. R. R. Nos. 6203, 6208, and 6202. Nos. 14 and 16 were bought from Southern I. & E. Co., Nos. 610 and 671. |
| 17-20 | New. |
| 21-23 | Bought from New York Central, in 1927. |
| 51-69 | Bought from New York Central, in 1927. |

| No. | ex-NYC | No. | ex-NYC | No. | ex-NYC | No. | ex-NYC |
|-----|-----------|-----|--------|-----|--------|-----|--------|
| 21 | 2418-2688 | 54 | 2936 | 59 | 2975 | 64 | 2968 |
| 22 | 2420-2690 | 55 | 2940 | 60 | 2978 | 65 | 2948 |
| 23 | 2424-2694 | 56 | 2965 | 61 | 2982 | 66 | 2976 |
| 51 | 2915 | 57 | 2971 | 62 | 2934 | 67 | 2953 |
| 52 | 2925 | 58 | 2972 | 63 | 2922 | 68 | 2966 |
| 53 | 2929 | | | | | 69 | 2909 |

| | |
|-----------------|---|
| 101-102 | New. |
| 115 | ex-U. P. Bought in 1926. |
| 116-117 | ex-M. K. & T. Bought in 1927. |
| 126-302 | New. |
| 401 | U. S. Gov't #1169. Intermediate source unknown. |
| 402-403 | U. S. Gov't Nos. 1180 and 1184. From Wichita Falls, Ranger & Ft. Worth Ry. |
| 501-505 | New. Final cylinders: 501, 19 1/2" x 26"; 503, 18" x 26". |
| 701-706 | Purchased from St. Louis & Hannibal Ry. Co. Originally L. S. & M. S. engines. |
| <i>Orient #</i> | <i>LS&MS #</i> |
| 701 | 758-5758 |
| 702 | 793-5793 |
| 703 | 803-5803 |
| <i>Orient #</i> | <i>LS&MS #</i> |
| 704 | 831-5831 |
| 705 | 810-5810 (boiler) |
| | 834-5834 (chassis) |
| 706 | 838-5838 |

801-805 New.
Engine #2 was the first engine south from Anthony, and was present when the first spike was driven there.

A number of Orient locomotives, including Nos. 101, 102, 126-156, 251, 252, 301, 302, and 501-505, were built new with Allfree-Hubbell valves. Most of these engines were later equipped with piston valve cylinders and their original Stephenson gear was replaced with Walschaerts.

Nos. 701-706 were sold by the N. Y. C. to the St. Louis & Hannibal Ry., in 1923. They were extensively rebuilt by that road and sold to the Orient.

Engines marked with an asterisk (*) disappeared from the roster by 1929, and were probably scrapped by the Orient.

O-Mex: Sold to the K. C. M. & O. of Mexico.

I/S: In service.

Sc.: Scrapped.

H-M.: Hyman-Michaels Co. Chicago scrap dealers.

Most locomotives marked "Sold" (So) were sold for scrap.

No. 2522 was donated to the City of Fairview, Aug. 7th, 1954.

Roster data as of Sept. 30th, 1954.

Acknowledgements. A history such as this cannot take shape without the assistance of people who have information about the railway, including those with first-hand recollections, as well as those having files of published material. Particular thanks are due to L. Roy Hoard, retired president of the Mexico Northwestern, who was general manager of the Mexican lines of the K. C. M. & O. during the 1930s; Oscar W. Ervin, trainmaster of the Texas lines of the Orient when the Santa Fe took over and, since then, conductor on the Presidio run; Chester H. Linscheid, librarian of the New Mexico College of Agriculture and Mechanic Arts, and his reference staff; the reference staffs of the Kansas State Historical society, the El Paso, Texas, Public Library, and the Bureau of Railway Economics library of the Association of American Railroads; and the Atchison, Topeka and Santa Fe Railway.

Bibliographical Notes. Most of the published information about the Kansas City, Mexico and Orient is available only in the form of magazine and newspaper articles, government documents, and such railway-issued items as the Dickinson and Odell report on Orient prospects (1909) and the various plans of reorganization. Some related material is available in book form, such as Arthur Stilwell's *Cannibals of Finance; Fifteen Years' Contest with the Money Trust* (Farnum Publishing Company, Chicago, 1912). A *Southwestern Utopia*, by Thomas A. Robertson (Ward Ritchie Press, Los Angeles, 1947) describes the Topolobampo colony, but contains relatively little about the railroad. S. G. Reed's *A History of the Texas Railroads* (St. Clair, Houston, 1941) and L. L. Waters' *Steel Trails to Santa Fe* (University of Kansas Press, 1950) devote some space to the Orient. At least two short financial analyses have been published, independent of the railway's management: one as #10 in volume two of Charles F. Speare's *Railroad Studies*, September, 1911, and the other by John Leeds Kerr, published by the Railway Research Society, New York, in 1928. Poor's *Manual of Railroads* for 1906 carries a description of the project. And Arthur Stilwell's autobiography, *I Had a Hunch*, is to be found serialized in six issues of the *Saturday Evening Post*, beginning December 3, 1927, and ending February 4, 1928.

Railway Equipment Up The River Minnesota; 1861-1869

By WALTER F. BECKER

In the decade of the Civil War, Minnesotans watching from the bluffs of the Mississippi River often saw below them a unique and welcome spectacle. Two distinct forms of transportation were visible in one panorama. Steamboats labored against the current, pushing barges upon which rested balloon-stacked locomotives, varnished passenger cars, and utilitarian freight cars. The people rejoiced as they saw the significance of this railway equipment—the eventual end of those winter months of isolation from the East when the river was closed to navigation.

Painters, photographers, and historians have all failed to leave us many impressions of these scenes, although they took place to the number of seventy five or more. Regional museums can display but a single example of a photograph, and this depicts a shipment of rolling stock in another region—on the Red River of the North, destined for Manitoba in the year 1877. The extensive, even monumental works on Mississippi River steamboating by Gould, McMaster, Merrick, Quick, Peterson, Hartsough, and Hunter are silent on this phase of river traffic. We must attribute this to the very small part which equipment cargoes formed in the whole upper river trade. The glamor was present but neglected by early writers.

The first iron rails in the newly created state of Minnesota were laid by the *St. Paul & Pacific Railroad*, without special ceremony, in St. Paul in September 1861. This event was three years after admission to the Union. In the next six years all material necessary for the construction and operation of the railroads within the state was brought in on board river boats and barges, for there was no other practicable means of shipping it in. The cargoes thus carried in time enabled the railways to displace the steamers in the major share of the passenger and merchandise trade on the river.

Minnesota secured rail connection with the East in October 1867. It was accomplished when the *Minnesota Central Railway* built a 71 mile line from Minneapolis and St. Paul southward to Owatonna as the first step. Opposite the railhead of Prairie du Chien, Wisconsin, the *McGregor Western Railway* in 1864 began laying track at North McGregor on the Iowa bank of the Mississippi River, and built across that state as far as Cresco, 62 miles. The *Milwaukee & St. Paul Railway* purchased both lines and promptly closed the 82 mile gap between the two. The necessity for river transit was now ended, save for the ferrying of cars across the river at certain points until bridges spanned the waters.

The end to the panorama of rolling stock on the river was announced by the *St. Paul Daily Press* under date of November 23, 1867, when it reported the arrival of a shipment of cars from Prairie du Chien via rail for the *Minnesota Valley Railroad* and expressed the belief that this was the first rolling stock to come all the way by rail.

Down to this date no less than five independent railroads had been obliged to import all their supplies and equipment via the river. One or two continued to patronize the water route for a year or two longer, as well as two more railways which were promoted after this event.

Cargoes of railway equipment were loaded at a number of river ports. Evidently the greater proportion were put aboard at La Crosse, Wis., the terminus of the *La Crosse & Milwaukee RR*; a secondary point was Prairie du Chien, Wis., the end of the track of the *Milwaukee & Prairie du Chien Ry.*; the *Milwaukee & St. Paul Ry.* acquired both lines and continued to forward the shipments to future competitors. A rather negligible third point of loading was Dunleith (East Dubuque), Ill., a railhead of the *Illinois Central RR*.

This freight was rolled off the barges at the Minnesota points of Hokah, Winona, Hastings, St. Paul, Mendota, and Credit River landing. The condition of the river explains the absence of St. Anthony and Minneapolis from the list. The minimum distance involved may have been that from La Crosse to Hokah, less than twenty miles. Among the longest journeys for units of rolling stock may be mentioned the delivery of two *LS&MRR* locomotives from Dunleith to St. Paul, 290 miles. The times en route varied so greatly that no schedules can be cited, the number of stops made and the nominal speed of the towboat being only two of the contributing factors. Low water and snags were ever present hazards.

Information is scant on whether rolling stock was ever transported on board steamboats, be it on deck or in the hold. Possibly the only instances of the kind, applying to Minnesota-bound shipments, would be the initial shipments for the *Southern Minnesota RR*, where barges would surely be difficult to handle on the narrow and winding Root River. This line did not begin construction at the bank of the Mississippi as the others did, but after its tracklayers reached the river the necessary material was ferried across from La Crosse.

We must assume that practically all equipment was carried on barges or flatboats. These were propelled by such diverse craft as luxury passenger and mail packets, freight steamers, and towboats (tugs, so to identify the latter). Possibly the largest boat to tow such a cargo was the "Milwaukee," a side-wheeler of 402 tons, and 240 by 33 feet dimensions, which the river historian Merrick called one of the crack boats of the Minnesota Packet Co. In August 1869—when the steamers had lost much of their passenger patronage—the 329 ton packet "Northern Belle" docked at St. Paul with two hundred and two passengers and a substantial freight on board, having left a few miles downstream a barge laden with a locomotive and a consignment of rails. The "Alhambra," of 187 tons, was typical of the freight boats. The record for the number of locomotives and cars escorted up river must be awarded to the doughty "G. H. Wilson," described by Merrick as a small stern-wheeler of 99 tons, especially built with powerful engines solely for use as a towboat. A single cargo brought up by this little vessel consisting of two locomotives, four platform cars and several hundred tons of iron rails was applauded by the press but it neglected to mention how many barges carried the manifest.



The "Shakopee" of the Minnesota Valley R. R.

Courtesy of C. E. Fisher

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No writer of those days has identified the type of craft used but it is not likely that any were built for the specific purpose of carrying rolling stock. Gould⁽¹⁾ relates that four sizes of barges were in general use for the transportation of coal (he does not mention other commodities). The largest were built for but a single trip and then broken up for lumber; of course they were cheaply built, measured 170 by 26 feet, and could carry 24,000 bushels or 960 tons of coal on a seven foot loaded draught. The other three sizes were smaller but more costly to build, with pointed bows and sterns and hull design similar to that of steamboats; their dimensions were 130 by 25 feet, 95 by 20, and 90 by 16; capacities 520, 280, and 160 tons; and loaded draughts six, four, and four and one half feet respectively. Their length of service was around ten years. A recent authoritative work⁽²⁾ states that barges of this superior design were called Model Barges and were used in large numbers in the transportation of general freight to the Upper Mississippi region; on their return trips they generally carried bulk and sacked grain in their holds, flour in barrels and also sacked grain on their decks—to name but two commodities. Lay a temporary track on one such craft, roll a unit of motive power or carriage over it, and a new era begins.

The method of propelling the auxiliary vessels (they were not towed) is lucidly explained by Hunter: "Barges were lashed together by ropes and chains . . . and tightened to form a single compact tow. This in turn was made fast to the bow of the towboat . . . Thus was formed a rigid, floating mass, of which the towboat was an integral part."

We must turn to brief press dispatches for a description of the unloading of equipment. It is clear from several accounts that one barge often accommodated several such units. When the initial shipment made the port of St. Paul on the memorable day of September 9, 1861, the *St. Paul Daily Press* related that a locomotive and four cars were on a track placed lengthwise on the barge, and it was the intention to lay a temporary track from the barge to the road bed. Both city newspapers were silent thereafter.

There does exist a boy's recollection of what followed. His account of the proceedings appeared in *The Northwestern Railroader* (published in Minneapolis), Feb. 20, 1888; p. 9: "There is a certain Railroad man in St. Paul who was here before the Railroads were . . . One Sunday afternoon twenty seven years ago . . . he went down to the levee and found a large barge there with two strange monsters on board. They were locomotives—the first locomotives in the State of Minnesota—which had been shipped up from Dubuque for the old (or then very new) St. Paul and Pacific.

"The news of the arrival of the locomotives soon spread through the city, and half the population of St. Paul turned out to see. A track

¹ Fifty Years on the Mississippi River (p.502); Emerson W. Gould; St. Louis, 1889. 1949.

² Steamboats on the Western Rivers; Louis C. Hunter. Harvard University Press;

was laid down to the deck of the barges, and then a couple of hundred men, being about all the available able-bodied population of St. Paul, took hold of cables attached to the locomotives and hauled them up on to the shore. The small, barefoot boy got hold of the knuckle end of one of the cables and hauled with the rest."

If we overlook certain errors we can otherwise accept this description of the first disembarkation as reliable. The first locomotive arrived alone, although several cars accompanied it—from Prairie du Chien on a Monday morning in 1861. The informant may have confused the occasion with a related event five years later when two engines arrived simultaneously, but this was on a Tuesday in 1866, and the cargo came from La Crosse. Furthermore these engines must have been drawn ashore by another engine, or by means of a windlass.

The latter instrument may have sometimes been used to run off lighter carriages. Trustworthy mention of the use of an engine as the pulling agency is found in the press coverage* of the landing of the St. Paul & Pacific locomotive F. R. DELANO. This unit was drawn through by rail on its own wheels as far as La Crosse, and there run "into" the barge on a temporary track. Upon arrival in St. Paul the usual procedure was followed; the engine was then drawn to the side track of the railroad (obviously by means of a cable) by another engine.

Of the varied types of railway equipment brought up river contemporary newspapers mention locomotives; passenger coaches; baggage, mail and express cars; box cars, and platforms (flat) cars. Stock cars and gondolas were not mentioned in any of the references but from other sources we learn that one or more lines possessed coal cars in 1867, and these would be gondola type. Sleeping cars could not have been included in river cargoes for they did not go into service until a comparatively late date; the *St. Paul Dispatch* on April 20, 1868 stated that the first one in Minnesota was making its inaugural run that evening, over the M & St P Ry.

Lovers of drama may be disappointed over the absence of any tradition that a cargo of this nature was ever sunk on the way up. There exists no legends of lost locomotives or cars buried in the river bed.

The accompanying list of rolling stock cargoes delivered to Minnesota via the water route is based on a careful perusal of state newspapers of the times, principally those of Winona, St. Paul, Shakopee, and Hastings. It is not a comprehensive list; reporters assigned to the waterfront may not always have been diligent, and occasionally an editor may have decided that a routine shipment was not newsworthy. Certainly overlooked was more than one cargo destined for the Minnesota Central and the Minnesota Valley roads, which passed the port of St. Paul in the night en route six miles farther up river to Mendota, at which place there was no publication.

The railway equipment which comes under this review was considerably lighter than that in use in our era. Reports of the Minnesota Railroad and Warehouse Commission for the year ending August 31,

* *St. Paul Pioneer*; June 5, 1868
St. Paul Press; June 6, 1868

1871 furnish weights (empty) of representative rolling stock then in service on American railroads:

| Weight (Empty) | Capacity | Type |
|-------------------|---------------|-----------------------|
| 20,000 # | 20,000 # | Freight, Box |
| 16,000 | 20,000 | Freight, Flat |
| 19,000 | 56 Passengers | Baggage and Mail Cars |
| 30,000 | | Passenger coach |
| 58,000 | | Locomotive, Passenger |
| 66,750 | | Locomotive, Freight |

(Locomotive weights without tender)

Statements of rolling stock owned by the lines at given periods enable one to attempt an estimate of how many units arrived unheralded. However, the railroads took the earliest opportunity to establish their own machine and car shops, in which they manufactured most types of equipment. Certain material for this purpose, including car wheels and axles, was shipped in as early as 1863.

Seven railroads received engines and cars under the conditions narrated here. None of these lines are in operation today under its original name. The roll, with present name and the date of the beginning of operations, is here enumerated:

| | | |
|--------------------------------|------------|------------|
| St. Paul and Pacific RR | GNRy. | July 1862 |
| Winona and St. Peter RR | C&NWRy. | Nov. 1862 |
| Minnesota Central Ry. | CMS&P&PRR | Sept. 1865 |
| Minnesota Valley RR | CS&PM&ORy. | Nov. 1865 |
| Southern Minnesota RR | CMS&P&PRR | Dec. 1865 |
| Lake Superior & Mississippi RR | NPRy. | Sept. 1868 |
| Hastings and Dakota Ry. | CMS&P&PRR | Dec. 1868 |

SAINT PAUL AND PACIFIC RAILROAD
(St. Paul, Minneapolis & Manitoba Railway)
(Great Northern Railway)

| Date of Arrival at St. Paul | Type of Equipment | Name of Towing Steamer | Point of Loading |
|-----------------------------------|--------------------------------|------------------------------|---------------------|
| 1861, Sept. 9 | One locomotive Several cars | Alhambra | Prairie du Chien |

The make-up of this historic first cargo of railway equipment for the state of Minnesota is enumerated differently in the two St. Paul newspapers of the times—

Press: one locomotive and tender; three platform (flat) cars; and one passenger car.

Pioneer: one locomotive; one box car; two platform cars; two hand-cars; and about fifty tons of track iron.

The rails and hand-cars were landed at the levee (then as now at the foot of Jackson and Sibley streets), but the locomotive and other cars were taken to the end of the railroad embankment near the mouth of Phalen Creek, about one half mile east.

The engine was the famed WILLIAM CROOKS, now on permanent exhibition in the St. Paul Union Depot. It had been shipped on board the barge at Prairie du Chien on the evening of Friday the 6th, and

arrived in St. Paul on Monday morning, September 9th; although the distance was but 229 miles it appears to have been about sixty hours en route.

| | | | |
|----------------|------------------------------|----------|------------------|
| 1861, Sept. 28 | One locomotive Three cars | Alhambra | Prairie du Chien |
|----------------|------------------------------|----------|------------------|

The locomotive, second in the state, was named EDMUND RICE.

The fate of the 187 ton steamer Alhambra, escort to the first two locomotives and the first half dozen freight cars for Minnesota, deserves notice. Its career of nine years from the date of its launching at McKeesport, Pennsylvania, came to an end by fire at Commerce, Missouri, in 1863.

| | | | |
|---------------|--------------|----------|------------------|
| 1862, June 28 | Several cars | Key City | Prairie du Chien |
|---------------|--------------|----------|------------------|

The two dailies merely stated that passenger cars were included in the cargo, but previously, on April 29, the *Pioneer* reported that the StP&P had at Prairie du Chien—to be shipped within a short time to St. Paul—

One passenger car
One baggage car
Two platform cars

The paper further stated that the passenger car was marked "St. Paul and St. Anthony." Undoubtedly this was the shipment brought up by the Key City on June 28. Final proof is furnished by the June 29 issue of the *Press*, which stated that this was the first installment of passenger cars for the StP&PRR (and the first in the state as well).

Regular train service between St. Paul and St. Anthony (now the eastern part of Minneapolis) was inaugurated on July 2, 1862, although at least three excursion trains had been run previously over the ten mile line.

| | | |
|---------------|------------------------------------|----------|
| 1862, July 13 | One baggage car One freight car | Key City |
|---------------|------------------------------------|----------|

From the above records of cargoes it is impossible to prepare an accurate list of the road's rolling stock at this period. However, a decade later, the *St. Paul Pioneer* of October 25, 1871 informed its readers—"The first rolling stock brought to Minnesota for the StP&PRR by E. F. Drake under his contract were: two locomotives; one passenger car; one baggage car; three box cars; and six flat cars—all of which are still in use."

| | | | |
|----------------|-----------------------------------|----------------|-----------|
| 1863, Sept. 14 | One locomotive Seven flat cars | Chippewa Falls | La Crosse |
|----------------|-----------------------------------|----------------|-----------|

Low water at this period hampered river traffic to such an extent that the 157 mile run to St. Paul took nearly a week, according to the *Press*.

In the several newspaper accounts of this cargo we learn that the flat cars were part of an order of ten built in Clinton, Iowa. The locomotive was manufactured by Norris, of Philadelphia; when it arrived at La Crosse the *Pioneer* stated that it was named PACIFIC, but when it reached the St. Paul landing the same paper referred to it as the MINNESOTA. (It was mentioned by this name in 1866.)

1863, Nov. 23

One passenger car

Cutter

The Company's car shops were now building cars of their own, the *Press* related on November 18 of this year. Having recently received a lot of car wheels, axles, etc., they were constructing flat cars for use on work trains, also passenger cars, but the latter probably were not luxuriously finished. In later years company reports mentioned their passenger cars as being first class and second class.

The first mention of a caboose on this railroad, or anywhere in Minnesota, appears in the *St. Paul Press* Jan. 19, 1864, in its description of a Legislative excursion on the preceding 18th, to celebrate the completion of the line to Anoka. The reporter wrote that the train consisted of three passenger cars, one baggage car, and a "caboose;" leading us to wonder today why the word was enclosed in quotation marks.

1864, July 7
1865, Oct. 31

Three flat cars
One locomotive

Enterprise
G. H. Wilson

This item could not be found in the *Press* but the *Pioneer* stated that the locomotive and tender had been purchased from the Dayton & Union (an Ohio line), and was to be used on work trains. Its name was not given but on June 21, 1868, there is reference to the ITASCA in yard service, which must be this engine.

1866, June

Two passenger cars?

The *Pioneer* on June 10th reported that two first class passenger cars were en route to St. Paul for this road but mention of their arrival could not be found, unless they were greatly delayed and came Nov. 6 (see below).

1866, July 15

One locomotive

This unit of motive power calls for an extensive review, since we find several references to it. The *Pioneer* on the preceding June 10th related that General Manager William B. Litchfield had purchased for \$25,000 a new, first class engine, with 16x24 inch cylinders; it was to be delivered in about two weeks from that date.

Its arrival was recorded in the *Pioneer* of July 17th, which said it came the day before, bearing the name C. V. CULVER. The *Press*, in fuller detail, reported that it arrived on the 15th; weighed 32 tons, was double the capacity of any other engine on the road, and was to be called the ANOKA. (An engine by this name was mentioned in the *Pioneer* August 11, 1867.)

The *Press* three years later, August 13, 1869, in a passing reference to the ANOKA, mentioned that it had been built by Danforth & Co., Paterson, N. J.

We may come to the conclusion that the engine was new, or practically new, but had been purchased from another road, where it carried the name C. V. CULVER, and was renamed ANOKA. We learn that the Hon. C. V. Culver at this period was a congressman from Pennsylvania, and a Director of the Atlantic & Great Western Ry. While this road was of six-foot gauge, it controlled the standard-gauge Cleveland & Mahoning RR in Ohio. In 1868 the locomotives of the latter road were numbered 201 through 226—with one significant vacancy, number 204.

There is a remote possibility that this was the C. V. CULVER/ANOKA,
 1866, Aug. 14 Two locomotives G. H. Wilson La Crosse

These were certainly numbered 6 and 7. There is no clue to the name borne by No. 6, but the *Pioneer* on Aug. 25, 1867, mentions the ST. CLOUD, No. 7.

1866, Nov. 6 Two passenger cars Enterprise

First class coaches, costing \$7,000 each.

(Statement of StP&PRR equipment: June 1, 1867—)

| | | |
|--|--|---------------------|
| 7 Locomotives | | 25 Box cars |
| 6 First class passenger cars | | 25 Platform cars |
| 1 Four-wheel passenger and baggage car | | 2 Construction cars |
| 3 Baggage, mail and express cars | | 15 Hand cars |
| 1867, Oct. 8 One locomotive Hudson | | La Crosse |

Named GEORGE L. BECKER, and built by Mason Works, Taunton, Mass., at a cost of \$15,000. Weight about 30 tons. Diameter of driving wheels was 5 feet.

1868, June 4 One locomotive Diamond Jo La Crosse

Named F. R. DELANO, and built by Mason. Weight nearly 28 tons; cylinders 15x22 inches; drive wheels 5 ft.

1868, July 15 One locomotive Nellie Kent

Named JARED BENSON, another Mason engine; weight 28 tons; cylinders 15x22 inches; drivers 5 ft. Stated to be exact counterpart of the F. R. DELANO. Another steamer (believed to be the *Flora* or the *City of St. Paul*) towed the engine as far as Prescott, where the *Nellie Kent* took the assignment.

1868, June 15 Two passenger cars

Two accounts of this shipment do not agree, and a third *St. Paul* daily now being published—the *Dispatch*—does not mention it.

The *Press* reported that two coaches came from New York, and were brought up by the *Favorite* (but in its *River News* section the tow boat was the *Annie Johnston*). The road intended to repaint and thoroughly refit them for use for pleasure and excursion parties, and to run them to Minnetonka and elsewhere.

In the *Pioneer* it was stated that the *War Eagle* was the tow boat. They had formerly belonged to the Nashville & Chattanooga RR and were furnished in "somewhat of the Southern style, the seats being caned instead of cushioned." They were taken to the shops to be thoroughly overhauled.

Unquestionably these coaches were far from new, or luxurious in their furnishings.

1869, May 21 One locomotive War Eagle La Crosse
 One baggage car

The engine was named JUD RICE, No. 11. It was reported to have cost \$14,500. Its drivers were five feet in diameter and its cylinders 15x24 inches.

A. The baggage, mail and express car was manufactured by Barney, Smith & Co., of Dayton, Ohio. Its length, 50 feet, was said to be 10 feet greater than that of any other car on the road.

he
he
1869, Aug. 12

One locomotive

Northern Belle (to Newport)
Mankato (Newport to St. Paul)

Named WAYZATA, No. 12. Built by Danforth Works, Paterson, N. J. Its cost was \$12,750, and freight charges to its destination was said to be \$750. It was certainly a smaller engine than some of its predecessors, its weight being recorded as but 27 tons. Drive wheels were five feet, and its cylinders were 15x22 inches.

rs
in-
of
28
1869, Sept. 14

Several cars

Key City

It is believed that this was the last cargo of rolling stock delivered by the river to the railroads of Minnesota.

Winona and St. Peter Railroad (Chicago & Northwestern Ry.)

| <i>Date of Arrival at Winona</i> | <i>Type of Equipment</i> | <i>Name of Towing Steamer</i> | <i>Point of Loading</i> |
|--|------------------------------|---------------------------------------|-----------------------------|
|--|------------------------------|---------------------------------------|-----------------------------|

(The *Winona Republican* on October 29, 1862, reported that one locomotive, one passenger car, one baggage car, and four flat cars were en route to Winona.)

| | | | |
|--------------|--------------------------------|--------|--|
| 1862, Nov. 3 | One locomotive One flat car | Keokuk | |
|--------------|--------------------------------|--------|--|

The locomotive was stated to be of medium size. On Nov. 7 it was first mentioned by name—TIGER.

| | | | |
|---------------|--|------------|-----------|
| 1862, Nov. 17 | One flat car | | |
| 1862, Nov. 22 | One passenger car One baggage car One flat car | Clara Hine | La Crosse |

1862, Nov. 24

Two cars, type not specified, were expected from La Crosse on this date. No further mention.

| | | | |
|--------------|-------------------------------|--------------|--|
| 1863, May 3 | Seven cars. No other details. | | |
| 1863, May 22 | One locomotive | Frank Steele | |

Weight 23 tons, "being some larger than the other one, the "Tiger". On May 27 some of its previous history was related: it was built expressly for passenger service for an eastern road; after six months service, a larger engine being required, the road sold it to the W&StPRR.

| | | | |
|---------------|----------------|--------------|-----------|
| 1863, June 12 | Several cars | Frank Steele | |
| 1863, Nov. 16 | One locomotive | Keokuk | La Crosse |

Ordered by the road from the Rogers Works, Paterson, N. J., for heavy freight service. Weight 35 tons, drive wheels 54 inches, cylinders 16x24 inches. Local pride inspired either the newspaper or the railroad to claim that this engine was the largest west of Lake Michigan.

| | | | |
|---------------|-------------------|--------------|--|
| 1863, Nov. 21 | One passenger car | Frank Steele | |
| 1864, Aug. 24 | One locomotive | | |

Named "Rochester," built by Paterson, N. J.

| | | | |
|---------------|-------------------|---------|-----------|
| 1864, Aug. 25 | Three box cars | Mankato | |
| 1864, Oct. 1 | One passenger car | | |
| 1864, Oct. 22 | Three box cars | | La Crosse |
| 1864, Nov. 10 | One locomotive | | |

Named "Owatonna," built at Patterson, N. J.; same as the "Rochester." There were now five engines in use, also 100 box cars and 25 flat cars; passenger cars not enumerated.

1865, Aug. 11

One passenger car for the W&StPRR was reported to be at La Crosse on this day. No further mention.

| | | | |
|----------------|----------------|----------|-----------|
| 1865, Sept. 25 | One locomotive | Favorite | La Crosse |
|----------------|----------------|----------|-----------|

Named "Mankato," built by Paterson, N. J., and was of same class as the "Rochester" and the "Owatonna." (This engine is believed to have been renamed "Faribault.")

| | | |
|--------------|-----------------|-----------|
| 1866, May 21 | Two locomotives | Milwaukee |
| | Six box cars | |

The locomotives were built at Paterson, N. J., and bore the names "Utica" and "Kasson." Weighing 30 tons each without tender, their cost was reported as about \$19,000 each. There were now eight engines in service.

| | | | |
|---------------|--------------------|------------------|-----------|
| 1866, Aug. 19 | One baggage car | Diamond Jo | |
| | Two freight cars | | |
| 1866, Aug. 22 | One locomotive | Diamond Jo | La Crosse |
| | Several box cars | | |
| 1866, Aug. 24 | Four box cars | | |
| 1866, Aug. 28 | Four box cars | Diamond Jo | |
| 1866, Oct. 5 | One passenger car | Favorite | |
| 1866, Nov. 24 | Two passenger cars | City of St. Paul | |

Stated to have been manufactured in Massachusetts.

Under date of December 29, 1866 the *Winona Republican* gave an illuminating review of the W&StPRR. It began operation three years previously with ten miles of track, a single engine, a second class passenger car, and a few freight or construction cars.

It now had in daily use 10 engines, 7 passenger cars, 3 baggage cars, 205 freight cars, and 31 flat cars.

No further mention of rolling stock deliveries on river barges to the W&StPRR can be found in files of Winona newspapers, although other Minnesota railroads continued to receive equipment by that method until late 1869.

Minnesota Central Railway (CMSTP&PR. R.)

| <i>Date of Arrival at Mendota</i> | <i>Type of Equipment</i> | <i>Name of Towing Steamer</i> | <i>Point of Loading</i> |
|---|-------------------------------|---------------------------------------|-----------------------------|
| 1864, Aug. 8 | One locomotive | Enterprise | |
| 1864, Sept. 3 | One flat car Six flat cars | Ariel | La Crosse |

(As the railway laid but seven miles of rails in 1864, from Mendota southward, the above rolling stock may have been all that was received in that year.)

Concerning the above locomotive, the reference work "Minnesota in Three Centuries," vol. 4, has this to say—"The first (CM&StP) locomotive arrived at Mendota in August 1864. It was of the old hook pattern and was named the WASHINGTON. It was subsequently changed to the link motion type and re-christened JAMES WATERS in honor of the master mechanic of the road."

The Minneapolis correspondent of the *St. Paul Pioneer* under date of August 25, 1866, wrote—"Today we saw a beautiful engine which has just been turned out of the Minnesota Central car shop. The work was all made here at the falls with the exception of the boiler and the driving wheels. The accomplished engineer, James Waters, superintended the building of the machine, which, we are glad to see, bears his name. It makes its trial trip on Monday and we can assure all that it is a success."

1865, June Eight box cars La Crosse

This shipment was reported to have left that port on June 7 but mention of its arrival was not found.

1865, June 13 One locomotive Hudson La Crosse
Several freight cars

Press: A locomotive and five box cars.

Pioneer: A passenger locomotive and several box and flat cars.

1865, June 14 Four cars G. H. Wilson

The *Press* stated that this steamer brought four cars to Mendota, but the name of the railroad was not mentioned. (Not found in the *Pioneer*.)

This shipment is listed in the MC section for the reason that this road alone was engaged in construction at Mendota at this period. The Minnesota Valley tracklayers did not reach Mendota until several months later.

1865, June 22 Several box cars G. H. Wilson

Press: Three box cars. *Pioneer:* Four box cars.

It is clear that no passenger cars had been received to date, or one or more would certainly have been put to use on July 11, when an

informal celebration was held in honor of the completion of the road for twenty five miles to Poplar Grove—three miles beyond Farmington.

As it was, the thirty invited guests, including Governor Ramsey and officials of the MC, MV and StP&P roads, were accommodated in what the *Press* delicately described as a passenger car in which the seats were not plush covered. The *Pioneer* a little more bluntly called it a "comfortable box car."

1865, Aug. 29 One passenger car Northern Belle

(*Press*: The MC will be open for business on Sept. 4 from Mendota to Northfield, 33 miles.)

1865, Nov. 3 Four box cars Favorite
1865, Nov. 5 Engines and cars Clara Hine

This shipment unfortunately was not further described.

1865, Nov. 15 Several cars Clara Hine

Pioneer: Three passenger cars.

Press: Two passenger cars; two mail and baggage cars; and one box car.

1865, Nov. 17 Six freight cars McLellan
1865, Nov. 24 Several freight cars La Crosse
Mollie Mohler

(The Enterprise on the above date towed freight cars to Mendota; whether same shipment is not clear.)

In its issue of December 3, 1865, the *Pioneer* credited the MCRy. with four new locomotives on the road and one old one in the shops being repaired; three passenger cars; two baggage, mail and express cars; and one hundred freight cars. (This review must have been written several weeks previously, and may apply to a date just prior to the Nov. 15 shipment.)

1866, July 6 One locomotive? G. H. Wilson

The *Pioneer* reported that this engine was destined for the Minnesota Central but the *Press* stated that it arrived for the Minnesota Valley Railroad.

1866, July 17 Eight box cars? Chippewa Falls

Again the St. Paul papers disagree in that the *Press* listed these for the MV, while the *Pioneer* said they were MC.

This is the last recorded instance of rolling stock arriving at St. Paul or Mendota for service on the MC. In the following month the railroad was completed to Owatonna, where it made a connection with the Winona & St. Peter RR. Thereafter equipment for the MC need be transported by river only as far as Winona, landed there, and run over the W&StP tracks to the MC at Owatonna.

1867, May 22 One locomotive War Eagle

Reported in the *Winona Republican*, which further stated that it came from the Milwaukee & St. Paul RR (which soon purchased the MCRR), had steam up and was evidently prepared for business. This is clear indication that the engine was to be landed at Winona and put on W&StP rails.

(The *Minneapolis Tribune* on June 1 was probably referring to the above engine when it said that the MC added another locomotive and now had a total of eight on the line.)

1867, Aug. 7

One locomotive

Keokuk

Reported in the *Winona Republican*, which added that it had been used for some time on the M&StPRR.

MINNESOTA VALLEY RAILROAD

St. Paul & Sioux City R.R.

(CSiPM&O Ry.)

| <i>Date of Arrival</i> | <i>Type of Equipment</i> | <i>Name of Towing Steamer</i> | <i>Point of Loading</i> |
|----------------------------|------------------------------|---------------------------------------|-----------------------------|
| 1865, June 7 | One locomotive | Northern Belle Mollie Mohler | La Crosse |

Named "Mankato." The Northern Belle brought it to St. Paul, the Mollie Mohler from there to the landing at Credit River (later Hamilton, now Savage, Minn.).

| | | |
|---------------|------------|--------------|
| 1865, June 14 | Four cars? | G. H. Wilson |
|---------------|------------|--------------|

(This is a doubtful entry. This shipment more likely was destined for the Minnesota Central.)

| | | | |
|---------------|-------------------|----------|-----------|
| 1865, July 3 | Three flat cars | McLellan | |
| 1865, Oct. 31 | One passenger car | Favorite | La Crosse |

One locomotive and combination baggage and second class passenger car—permanently connected.

The passenger car, rated first class, was built at Worcester, Massachusetts, by Osgood Bradley.

The locomotive, named "Shakopee," was built at the Columbus, Ohio, Car Works of the Columbus & Indianapolis Ry. by Master Mechanic W. Romans. James Drugan accompanied it by rail to La Crosse, thence by barge to Mendota, then the northern terminus of the road, where he put it in running order.

| | | |
|--------------|------------------|--------------|
| 1866, July 6 | One locomotive? | G. H. Wilson |
| | Two or more cars | |

This cargo was listed differently in the two St. Paul dailies of the period. In the *Press* version a locomotive and tender, and several freight cars arrived for the MVR. If this is correct then the engine may have borne the name "Le Sueur," which was on the road in 1869.

The *Pioneer* reported that two barges loaded with one locomotive for the Minnesota Central and two cars for the Minnesota Valley were taken to Mendota.

| | | |
|---------------|-----------------|----------------|
| 1866, July 18 | Eight box cars? | Chippewa Falls |
|---------------|-----------------|----------------|

This steamer brought the tow from nearby Prescott, Wis. It is not clear which boat towed the barge up the river to that point, nor whether for MV or MC road.

| | | |
|---------------|---------------|-----------------------|
| 1866, Aug. 14 | Four box cars | Milwaukee Chippewa |
|---------------|---------------|-----------------------|

The first named brought the shipment to St. Paul; the Chippewa (really the Chippewa Falls) from the latter place to Mendota.

| | | | |
|---------------|-------------------|------------------|-----------|
| 1866, Aug. 14 | Four flat cars | G. H. Wilson | La Crosse |
| 1866, Aug. 15 | Four flat cars | City of St. Paul | |
| 1866, Aug. 28 | One passenger car | Damsel? | La Crosse |
| | Several flat cars | | |
| 1866, Sept. 3 | One locomotive | Mollie Mohler | |
| | Two box cars | | |

The locomotive was named "Belle Plaine."

1866, Nov. 7 One locomotive
Named "St. Peter."

There is no further mention of railway equipment being delivered by barge to the MVRR after 1866.

On December 31, 1867, when the MVRR had 63 miles in operation, its equipment was listed as 6 locomotives, and 105 cars—7 passenger and baggage, 46 box, 37 flat, 4 coal, and 11 service cars.

Southern Minnesota Railroad

(Chicago, Milwaukee, St. Paul & Pacific R.R.)

Under the usual circumstances supplies for this line would have been ferried across the Mississippi River from the railhead at La Crosse. This railroad would not then have come within the scope of this narrative. But construction began, not on the bank opposite that point but at the village of Hokah on the Root River, which was a branch of the great river.

Contracts were let to build the first twenty miles of the road—from the Mississippi to Houston—in two ten mile divisions. Hokah was located about twelve miles east of the latter place, and about eight miles west of the Mississippi. Three miles of track were laid by mid-October 1865, and in early December nine miles had been put down east and west from Hokah.

The only press mention of requirements for rolling stock was in the *St. Paul Weekly Press*, Nov. 23, 1865, which quoted the *La Crosse Republican*: "The first engine of the Southern Minnesota Railroad is at the La Crosse depot, and today or tomorrow will be transported to its destination. It is to be shipped from here with several freight cars on a light draught steamer across the Mississippi and up the Root River, a distance of sixteen miles to Hokah, and from there to the track of the railroad. The engine is named in honor of one of the most energetic directors of the Southern Minnesota RR, Lieutenant Governor 'SHERWOOD.' "

As before surmised, the above units may have been loaded directly on board a steamer, rather than on barges.

Once more the *La Crosse Republican* is our authority for the date of revenue operation by the SMRR. An item from its January 2, 1866 issue was reprinted in the aforesaid St. Paul paper: "The first freight over the Southern Minnesota Railroad came in from Hokah on Saturday (December 30). Between 300 and 400 barrels of flour were discharged from cars opposite the city and conveyed to the depot of the La Crosse Railroad by teams (across the frozen Mississippi). So the Southern Minnesota Railroad was in working order before the end of 1865."

On December 31, 1867 this company owned 3 engines; 2 passenger cars; 1 baggage, mail and express car; and 75 freight cars. All of this equipment which was not taken up the Root River was ferried across the Mississippi from La Crosse to the former terminus of Grand Crossing, Minnesota, on the west bank.

Lake Superior and Mississippi Railroad

(St. Paul & Duluth R.R.)
(Northern Pacific R.R.)

| <i>Date of Arrival at St. Paul</i> | <i>Type of Equipment</i> | <i>Name of Towing Steamer</i> | <i>Point of Loading</i> |
|--|---------------------------------|---------------------------------------|-----------------------------|
| 1868, June 20 | One locomotive Two flat cars | Favorite | La Crosse |

This locomotive was said to be the first in Minnesota from the Baldwin Works, Philadelphia. Its weight was given as 31 tons, cylinders 16x24 inches, and drive wheels 5 feet.

When it arrived at La Crosse June 13 it bore the name "St. Paul," but when it reached St. Paul it had been renamed the "William L. Banning," after the road's president.

| | | |
|---------------|----------------|-------------|
| 1868, June 30 | Two flat cars | Favorite |
| 1868, July 16 | One locomotive | Nellie Kent |

This steamer brought it from Prescott, Wisc., where it had been towed by an unidentified boat.

The engine was named the "William R. Marshall" and was said to be the exact counterpart of the "Wm. L. Banning."

| | | |
|-----------------------|---------------|---------|
| 1868, Aug. 20 | Six flat cars | Mankato |
| 1868, Aug. 21 (After) | | |

At this date eight cars, type not described, were reported to be detained at Trempealeau, Wisc. on account of low water over the bar at that place.

| | | | |
|---------------|--------------------|---------|-----------|
| 1868, Sept. 8 | Two passenger cars | Mankato | La Crosse |
|---------------|--------------------|---------|-----------|

Two newspapers reported that this lot consisted of two passenger cars; one, that it was a new coach and a baggage car; and, finally, another listed it as two new second-class passenger coaches.

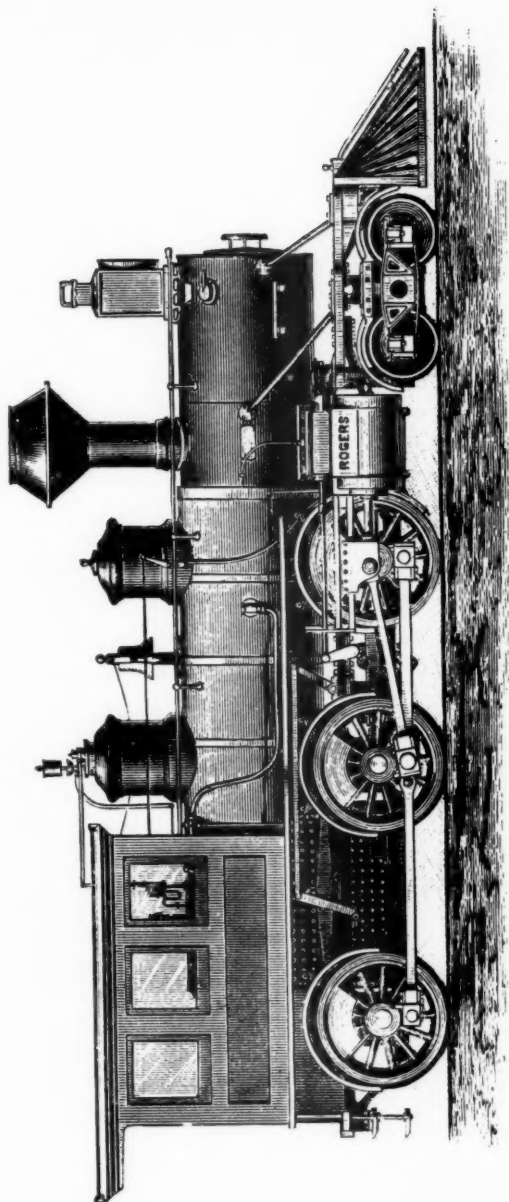
| | | | |
|---------------|-----------------|-------------|---------|
| 1868, Oct. 19 | Two box cars | Nellie Kent | |
| 1869, July 31 | Two locomotives | Key City | Dubuque |

Built by the Baldwin Works, Philadelphia.

| | | |
|---------------|------------|-----------|
| 1869, Aug. 31 | Three cars | War Eagle |
|---------------|------------|-----------|

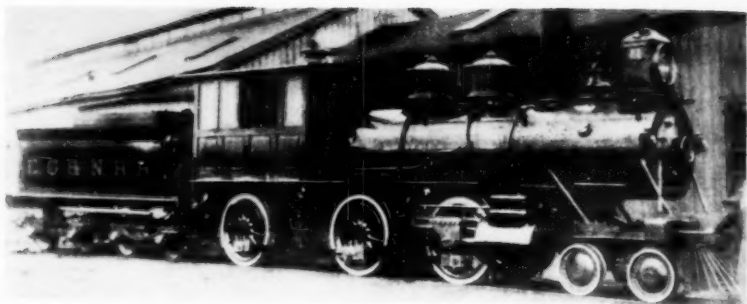
Early in 1870, when the LS&MRR had 75 miles in operation from St. Paul to Hinckley, its equipment comprised 7 locomotives, and 124 cars—5 passenger, 3 baggage, mail and express, 35 box, 76 flat, and 5 coal cars.

The majority of this rolling stock must have been delivered over the lines of other railroads.

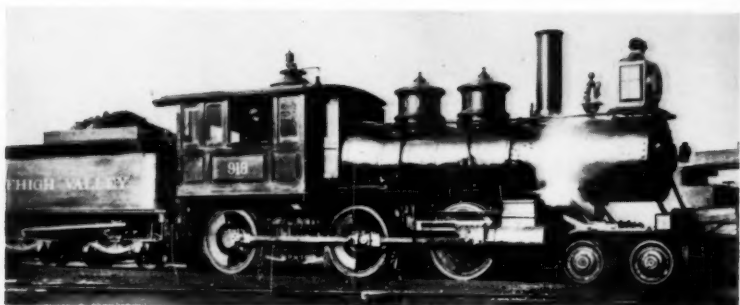


Courtesy of Fred Jukes

Plate X of the Rogers catalog, showing the proposed ten-wheeler.



Courtesy of S. R. Wood
 Elmira, Cortland & Northern #21. Cooke #1712, 1886. Became Lehigh Valley Nos. 921 and 1720.



Courtesy of Fred Jukes
 Lehigh Valley #919. Later #1170. Originally E. C. & N. #19.

Both of the above pictures were originally photographed by our member,
 Dr. Frank F. Sornberger on Jan. 1, 1897.

Hastings and Dakota Railway

(Chicago, Milwaukee, St. Paul & Pacific R.R.)

The first consignment of rails for the Hastings and Dakota Railway arrived at the levee at Hastings, Minnesota, on September 14, 1868; the first rail was spiked down seven days later. Eight miles of line were completed by October 31st, and in the last days of November connection was made at Farmington with the Milwaukee & St. Paul Ry. As twenty miles of road had been contracted for, work continued on the two or three miles remaining, which was completed January 7, 1869.

Insofar as rolling stock is concerned, it appears that one locomotive and a few cars used for construction were all that were shipped in via barge. The engine was the JOHN B. ALLEY, No. 1, which arrived October 18th and was put on the track the day following; the weight stated was twenty two tons. There is no clue to the identity of the towboat.

In official correspondence between Alley, a Massachusetts Congressman and a trustee of the H&DRy., and William G. LeDuc, the president of the road, it develops that the cost of the locomotive at Providence, R. I. was \$10,500, and freight charges from there to La Crosse, \$625. While freight charges from La Crosse up the river to Hastings, 130 miles, was not mentioned in the letters there is an obscure reference somewhere which quotes the toll as \$250.

A hint of the end of river deliveries occurs in the *Hastings Gazette's* comment on December 5 that "probably passenger cars will be borrowed from the other road, as it is too late to bring one up by boat." One or more were doubtless acquired from the M&StPRy., as regular passenger service began December 14th between Hastings and Farmington. When the road's second locomotive, the VERMILLION, which had been purchased in Chicago, was delivered on December 7th, it had rolled over M&StPRy. tracks to Farmington and was there switched over to the H&D.

In the preparation of this essay the writer wishes to acknowledge the courtesy of Willoughby M. Babcock, Curator of Newspapers; Minnesota Historical Society, St. Paul, Minn.

Moguls or Ten-wheelers?

By F. STEWART GRAHAM

In Mathias N. Forney's "Locomotives and Locomotive Building in America, 1831-1886," published in 1886 as part of the Rogers Locomotive Company catalog of that year, appeared a wood-cut illustration of a ten-wheel type locomotive of unusual appearance and design. A reproduction of the wood-cut is presented herewith, through the kindness of member Fred Jukes, of Blaine, Washington.

The following item was published in connection with the illustration. "A plan shown in Plate X was designed for a 10-wheel engine at the Rogers Locomotive Works, with a four-wheel truck in front of the cylinders. The order for these engines was, however, ultimately given to another establishment. In this design it was aimed to secure the advantages of both the 10-wheel and Mogul plans."

In 1884, the Cooke Company built seven locomotives, and, in 1886, four more, all for the Elmira, Cortland & Northern R. R., Nos. 12 to 22, inclusive, and strongly resembling the design shown in the Rogers catalog, and these may be the ones which the catalog stated were ordered through "another establishment." Cooke records indicate that they were indeed of the 4-6-0 wheel arrangement, having cylinders 20" x 24", and 54" diameter driving wheels.

These engines eventually went to the Lehigh Valley Railroad, when that road took over the E. C. & N., and were renumbered into the L. V. 900 series, by prefixing "9" to the original road numbers.

Because of the location of the forward driving wheels immediately behind the cylinders, there has been some conjecture that these engines were originally built at Moguls, and that the pony truck was later replaced by the four-wheel engine truck.

However, in view of the facts that (1) these locomotives may very possibly be the ten-wheelers of the Rogers catalog description, and (2) the Cooke records state they were 4-6-0's, the evidence seems to be that their original wheel arrangement was 4-6-0, although some L. V. authorities think otherwise.

In any event, when the L. V. motive power received a general renumbering in 1905, some engines of this group were changed to the 1100 series, Class J-36, and all L. V. Class J engines were ten-wheelers. The others, with one exception, were changed to the 1700 series, Classes H-4 and H-5, and, since the 1700 series were all of the 2-6-0 type, it may be assumed that these engines were of that type, having been rebuilt from ten-wheelers, by the E. C. & N. R. R.

Advantages of the original design, beyond giving the Mogul a ten-wheeler's stability and weight distribution, are not readily apparent. Certainly there was no grace or beauty incorporated in the lines of these engines, especially as to the arrangement of boiler fittings. Sand requirements appear to have been amply provided for. The Eames Vacuum brake was applied to some, perhaps all, of these engines. Although it

was not uncommon practice to place the steam dome inside of the cab on wide firebox engines, it was seldom done on end-cab locomotives, this being one of the rare cases where the dome was so located. The firebox was of unusual design, being 34" wide by 86" long, and 72" deep.

Examination of the photograph of #21, which probably shows the engine as built, discloses that the unusually long smokebox was part of the original construction, and was almost as long as the boiler itself. The diamond stack, also part of the Rogers design, was then currently used as spark arrestor on many locomotives burning anthracite coal.

A roster of the odd-appearing ten-wheelers is given herewith, in which it is assumed that all of these engine were of the design shown, although there is a question at this time that those built in 1884 were the same as those of 1886.

| <i>EC&N</i> | | | | | <i>LV</i> | <i>LV</i> |
|-----------------|----------------|------------|-------------|------------------|----------------|---------------|
| <i>No.</i> | <i>Builder</i> | <i>C/N</i> | <i>Date</i> | <i>Remarks</i> | <i>Numbers</i> | <i>Class.</i> |
| 12 | Cooke | 1567 | 1884 | Rebuilt to 2-6-0 | 912-1714 | H-4 |
| 13 | " | 1568 | 1884 | Ren'd EC&N 9 | 909 | Scrapped |
| 14 | " | 1569 | 1884 | Rebuilt to 0-6-0 | 914-3371 | G-12 |
| 15 | " | 1602 | 1884 | | 915-1168 | J-36 |
| 16 | " | 1603 | 1884 | Rebuilt to 2-6-0 | 916-1719 | H-5 |
| 17 | " | 1604 | 1884 | | 917-1169 | J-36 |
| 18 | " | 1605 | 1884 | Rebuilt to 2-6-0 | 918-1721 | H-5 |
| 19 | " | 1710 | 1886 | | 919-1170 | J-36 |
| 20 | " | 1711 | 1886 | Rebuilt to 2-6-0 | 920-1718 | H-5 |
| 21 | " | 1712 | 1886 | Rebuilt to 2-6-0 | 921-1720 | H-5 |
| 22 | " | 1713 | 1886 | Rebuilt to 2-6-0 | 922-1722 | H-5 |

Sources: CTA, GMB, CEF, FJ, FFS, SRW.

Chicago, Burlington & Quincy R. R.

CHICAGO TERMINALS

By A. W. NEWTON

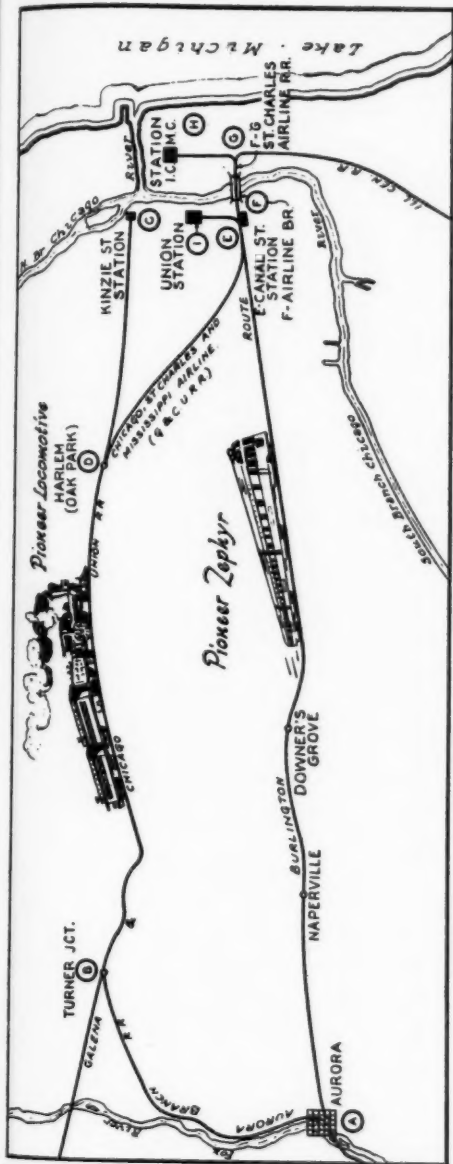
The first property acquired by the Burlington in Chicago consisted of "about ten acres of land, free from street crossings,"⁽¹⁾ located on the South Branch of the Chicago River, just north of North (now 16th) Street. It was purchased in 1856 from the Galena and Chicago Union and Fort Wayne and Chicago Railroads, who had in 1854 acquired it from the Chicago, St. Charles and Mississippi Air Line Rail Road, through the purchase of that road by the Galena and Chicago Union Rail Road that year.⁽²⁾

There were various reasons why the Burlington should select this as a location for its initial and permanent Company-owned terminals. The growth of Chicago at that time, both for industrial and residential occupation, was almost wholly south and westward. Lake shipping was extensive and the South Branch of the river was a continuous series of docks, slips and piers as far west as Western Avenue, then the western City Limits. Here came the Lake cargoes of lumber for unloading and transshipment to local yards by truck, and for western shipments by rail. Coal was also brought in by boat, and the movement of grain from the prairies of Illinois, eastward, was then by boat from the port of Chicago. It was but natural that the people guiding the destiny of the Burlington should so plan its Chicago Terminals as to be adjacent to this thriving industrial area.

Furthermore, on March 30, 1856, the St. Charles Air Line, extending eastward from the Chicago River to a connection with the Illinois Central Railroad on the Lake Front just south of 12th Street, was completed and placed in operation. It was jointly owned by four roads: the Illinois Central and Michigan Central on the Lake Front, and the Galena and Chicago Union and the Burlington on the west side of the river. Primarily this track was constructed for interchange of traffic between these roads, but, also, it was to serve the Burlington which was already planning the abandonment, because of inadequacy, of depot and terminal facilities of the Galena and Chicago Union at Kinzie Street.

According to Illinois Central records, the Burlington, on March 30, 1856, transferred its passenger and a portion of its freight business to the Illinois Central-Michigan Central depot and freight terminals on the Lake Front at the foot of Randolph Street.⁽³⁾ The use of these terminals continued until June 19, 1881, when the Burlington became a tenant of the Chicago Union Station on the west bank of the Chicago River at Adams Street.

Finally, the Burlington plan was to build an independent line into Chicago from Aurora which was accomplished in May, 1864, at which time all use of the Galena and Chicago Union ceased and the operating agreement was cancelled. This agreement, with later revisions, had been in existence since the Fall of 1850 when the original Aurora Branch Railroad was opened for traffic.



ROUTES-AURORA TO CHICAGO

*MILES
(Approx.)*

43
45 1/2
39 1/2
36

ROUTES

From
10-1850
3-1856
3-1866
6-1864
6-1881
6-1881

YEARS

To
3-1856
6-1864
6-1881
6-1881

August, 1949

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By 1856 the Burlington had been extended across Illinois to the Mississippi River, with western termini at East Burlington and Quincy, and was attracting business, from both Iowa and Missouri, destined to Chicago and points east of there. These conditions, together with the greatly increased volume of traffic, emphasized the necessity of improved terminal facilities in Chicago and fully justified the plans of the Burlington.

Soon after the Forbes interests acquired control of the Aurora Branch Railroad, early in 1852, plans for an independent terminal were developed. At the same time it was decided to construct its own line into Chicago, via Naperville, from Aurora. By an Act of Legislature, February 28, 1854, authority was given for the building of this line, but for various reasons its construction was not effected until 1864. In the meantime the Chicago Terminal of the Company was gradually being expanded, so that in 1864 it had been extended westward from the South Branch of the Chicago River to Western Avenue—then the western limits of the City. Here a considerable area of property had been acquired which is now occupied by the Western Avenue Yards and Engine Terminal.⁽⁴⁾

GALENA AND CHICAGO UNION TRACKAGE AND TERMINALS

From October 4, 1850, when the Aurora Branch was completed and train service between Aurora and Chicago instituted, until March 1, 1856, thirty miles of the Galena and Chicago Union main line and its Kinzie Street terminals in Chicago were used. In the annual report of the Galena and Chicago Union, June 6, 1855, the president, speaking of the great increase in traffic of the Burlington, stated that increased terminals were necessary and that purchase or control of the Chicago, St. Charles and Mississippi Air Line Railroad was under consideration to afford relief from the present overtaxed facilities.

This "Air Line," as it was sometimes referred to, was a projected railroad from the west bank of the South Branch of the Chicago River, just north of North (now 16th) Street, where it had acquired considerable terminal lands, westward through St. Charles to the Mississippi River at or near Savanna, Illinois. At the time the Galena and Chicago Union was considering its purchase about ten and one-half miles of road had been built, ending at or near Harlem, later known as Oak Ridge, and now as Oak Park. Its construction, as stated in the 1855 annual report of the Galena and Chicago Union Rail Road, was considered a "formidable rival," so its purchase served two purposes; first, to prevent the construction of a rival and competing line across the State, and, second, to provide the Galena and Chicago Union with much needed terminal property at a most advantageous location. The control of this property passed to the Galena and Chicago Union April 4, 1854.⁽⁵⁾

In the annual report of the Galena and Chicago Union for year ending May 31, 1856, the president stated: "During the past year, by the construction of one and a fourth miles of track, a connection has been made at Oak Ridge . . . with the line of the Chicago, St. Charles and Mississippi Air Line Railroad, so that trains can now pass from

the main line of your road at that point, to the extensive depot grounds on the South Branch of the Chicago River, owned by *that* (your) company in common with the Fort Wayne and Chicago Railroad Company."⁽⁶⁾

The Burlington immediately availed itself of the use of this new route leading to its South Branch property (10 acres) which had but recently been purchased from the Galena and Fort Wayne roads. On June 28, 1856, in a modified agreement between the Galena Road and the Burlington, the latter road was granted "the right to use the line known as the Chicago, St. Charles and Mississippi Air Line from its junction with the line of the Galena Company at Harlem." This undoubtedly refers to the connection elsewhere stated as being "at Oak Ridge" (now Oak Park). Use of this "branch" became effective May 1, 1856.

There is a hiatus between March 30, 1856, and May 1, 1856, during which time, under a mutual understanding, the Burlington moved both its passenger and freight business over this branch, for the records of the Illinois Central show that passenger trains of the Burlington began to run into the Illinois Central-Michigan Central Depot on March 30, 1856, at which time a joint connecting track had been built from Stewart Avenue, on the west side of the property acquired from the Chicago, St. Charles and Mississippi Air Line, across that property to the west end of the recently constructed bridge across the South Branch of the Chicago River. This joint track had been built by the Galena and Chicago Union and the Chicago and Aurora roads, for the purpose of interchanging freight traffic, as well as the use of the bridge and tracks to the Lake Front where connection had been made with the Illinois Central tracks. As previously stated, operation over this "Air Line" began March 30, 1856, and marked the beginning of the end of use by the Burlington of the Kinzie Street terminals of the Galena and Chicago Union Rail Road.⁽⁷⁾

All freight service was diverted to either the Company's new terminal property at 15th Street or the Illinois Central-Michigan Central terminal on the Lake Front. All passenger service was diverted to the Illinois Central-Michigan Central Station on the Lake Front, except a local passenger train to and from Aurora, which continued the use of the Kinzie Street terminals. The Great Chicago Fire of 1871 destroyed these Illinois Central-Michigan Central terminal properties at Randolph Street, and from that time until 1881 the Burlington continued the use of more or less temporary facilities provided by the Illinois Central-Michigan Central roads, until reconstruction after the fire had been completed.

The occupancy by the Burlington of these Lake Front facilities dates from March 30, 1856, to 1881, when it transferred its passenger business to the Chicago Union Station, located at Adams and Canal Streets, and its freight business to its own terminals at 16th Street on the west side of the South Branch of the Chicago River, thus terminating its tenancy of the Lake Front facilities after a use of 25 years. From March 30, 1856, until May 20, 1864, when the Burlington's own line

was completed into Chicago from Aurora, operation continued over the tracks of the Galena and Chicago Union Road to reach its own terminal properties, and the tracks of the St. Charles Air Line.

The following is a brief chronologic record of use of the Galena and Chicago Union trackage and terminals at Kinzie Street: (See Sketch Map)

1850

Aurora Branch Railroad opened for operation October 4, 1850, using the Galena and Chicago Union Railroad from Turner Junction to Chicago.

1852

John M. Forbes and his eastern associates became interested in the property and John W. Brooks, his western representative, was elected to the Board of Directors February 22, 1852. Name of road changed to Chicago and Aurora Railroad June 22, 1852.

1854

Control of the Chicago, St. Charles and Mississippi Air Line Railroad passed to the Galena and Chicago Union Railroad April 10, 1854.

1855-56

Prior to May 31, 1856, the Galena and Chicago Union road built a one and one-fourth mile connecting track between the two above named roads at Harlem, later called Oak Ridge, and still later known as Oak Park. This connecting track must have been built prior to March 30, 1856, for on that date the Burlington trains, both passenger and freight, began operating into the Illinois Central-Michigan Central terminals on the Lake Front, via the St. Charles Air Line, which had been opened for traffic on March 30, 1856. Also, just prior to March 30, 1856, a joint connecting track from Stewart Avenue to the west end of the St. Charles Air Line Bridge, over the South Branch of the Chicago River, had been constructed by the Galena and Chicago and the Chicago and Aurora Roads.

Although use of this new route was begun March 30, 1856, it was not until June 28, 1856, that a "modified agreement" was made between the Galena and Chicago Union and the Chicago and Aurora (formerly the Aurora Branch Railroad) roads by which the latter road was granted the right to use the line of the Chicago, St. Charles and Mississippi Air Line from its junction with the line of the Galena Company at Harlem.

1856-64

From March 30, 1856, to June 20, 1864, Burlington trains operated over:

(1) The Galena and Chicago Union Railroad from Turner Junction to Harlem;

(2) The track of the Chicago, St. Charles and Mississippi Air Line (owned by the Galena and Chicago Union Railroad) from the junction at Harlem to the terminal properties of the Galena and Burlington roads at 16th Street and Stewart Avenue;

(3) The joint connecting track from Stewart Avenue to the west end of the St. Charles Air Line Bridge over the South Branch of the Chicago River;

(4) The St. Charles Air Line from the west bank of the South Branch of the Chicago River to a connection with the Illinois Central Railroad near 12th Street and the Lake Front;

(5) The Illinois Central track from its connection with the St. Charles Air Line south of 12th Street to its depot and terminals near Randolph Street and the Lake.

1864

May 20, 1864, the Burlington's own line was completed between Aurora and Chicago, and on this date the operating agreement that had been in effect since 1850 was terminated.

1864-1881

The Burlington continued the use of the Illinois Central Depot and Terminals on the Lake Front until June 19, 1881, when it became a tenant of the Chicago Union Station, located at Adams and Canal Streets, west of the Chicago River.

ST. CHARLES AIR LINE

When, in 1852, John M. Forbes and his associates acquired control of the Aurora Branch Railroad it was with a plan, though still in an undeveloped stage, for a railroad system extending from Chicago across Illinois to the Mississippi River that would serve as a feeder to the Michigan Central Railroad which was just being completed into Chicago from the East.

To assure full benefits to the Michigan Central from this projected Illinois railroad system a physical connection between the two roads, including a "draw span" bridge across the South Branch of the Chicago River, was necessary. That this was considered important by officials of the Company is evidenced by the fact that on October 19, 1852, but a few months after the Michigan Central interests had come into control of this property, and had changed its name from Aurora Branch Railroad to Chicago and Aurora Railroad, it was "Resolved, That the president John W. Brooks and John Van Nortwick (a director) be a committee to take charge of consideration of construction of a Chicago River Draw Bridge, connecting them (the Chicago and Aurora) with the Illinois Central Railroad, and to confer with that or any other company likely to be interested in such a bridge."

That such a connection was then under consideration is evidenced by a City Ordinance, passed June 14, 1852, granting the Illinois Central right to "construct a *side track* from its main track beginning at or near 12th Street . . . westerly to the south branch of the Chicago River, thence crossing said south branch . . . ; Thence proceeding northerly to Kinzie Street. . . ." While not specified in the ordinance, it seems logical to conclude that at Kinzie Street this "side track" would there connect with the Galena and Chicago Union Railroad, thus affording direct interchange of traffic between the two roads. A few days later, June 22,

1852, the Illinois Central obtained from the State Legislature an amendment to its charter authorizing "the construction and operation of a *lateral track*," permitting its construction and its becoming a part of the Illinois Central System.

The procuring of change of charter by Legislative enactment, and the wording of same, would indicate that the Illinois Central may have had plans for a "lateral branch" extending farther west than just to and across the Chicago River. It is a fact that for several years after March 30, 1856, that road, together with the Galena and Chicago Union, operated a joint passenger train service between East Dubuque and Chicago, over the Galena and Chicago Union between Chicago and Freeport and over the Illinois Central between Freeport and East Dubuque, which continued until the Illinois Central constructed its own line from Freeport to Chicago in August, 1888.⁽⁸⁾

Between 1852 and 1855 the plans for this connection were perfected, and four railroads; the Illinois Central, the Michigan Central, the Galena and Chicago Union and the Burlington joined in its financing, its construction being delegated to the Illinois Central.

August 27, 1855, at request of the Illinois Central, previous City Ordinance of June 14, 1852, was amended, changing the route originally planned to occupy 12th Street to a specific route over private property, and purchase of right of way began immediately, title to property, for convenience, being taken in the names of George Sedgwick,⁽⁹⁾ of the Illinois Central, and John W. Brooks, of the Chicago and Aurora Railroad, the organization of the project under the four roads not yet having been perfected.

Baldwin's Documentary History of the Burlington says: "It was originally projected in 1852 as a *branch* of the Illinois Central, but, by the year 1855, its importance as a means of connecting these four roads for interchange of traffic became so apparent that they joined together in its construction, each company paying one-fourth of the cost." So far as the Burlington was concerned it joined in the promotion of this project with two objects in view, largely influenced by domination of the Michigan Central interests which controlled it. As Baldwin says—"The principal motive, at this time, being to enable the Burlington Company . . . to secure access to the passenger station on the Lake Front . . . which was being built by the Michigan Central and Illinois Central jointly."⁽¹⁰⁾ This undoubtedly was the prime motive—the second was to afford direct interchange of the rapidly growing freight traffic destined to and from the Chicago and Aurora Railroad without breaking bulk, or at least to provide economical transfer from one road to another. Construction began in May, 1855, and it was in operation on March 30, 1856. The only use now made by the Burlington of the "Air Line" is for interchange of freight traffic between it and other railroads, and movement of passenger equipment when occasion demands.

It was not until February 16, 1865, that the Legislature of Illinois legalized the ownership of the four roads interested in the Air Line, the property acquired in 1855 having been transferred to the "Air Line" March 1, 1864, by George Sedgwick and John W. Brooks, in whose names it was originally taken. In this act of 1865 the line was not recognized

by any name or as a Railroad Company, it being simply designated as "a piece of railroad situate in the City of Chicago."⁽¹¹⁾

How this connecting track came to be called the "St. Charles Air Line" is not a matter of record, and so must remain one of conjecture. In the accounting records of the Burlington the investment of the Company was, in 1856 and 1857, carried under the title "St. Charles Air Line Extension;" but during the years 1858 to 1865 inclusive it was designated as "Union Track." In a Chicago Ordinance passed December 15, 1862, it was referred to as the "Union Track," and in a later ordinance it was referred to as "a piece of railroad track," whereas in the first ordinance, June 14, 1852, it was simply designated as a "side track," and in an amendment to the Illinois Central Charter, June 22, 1852, it was called a "lateral track."

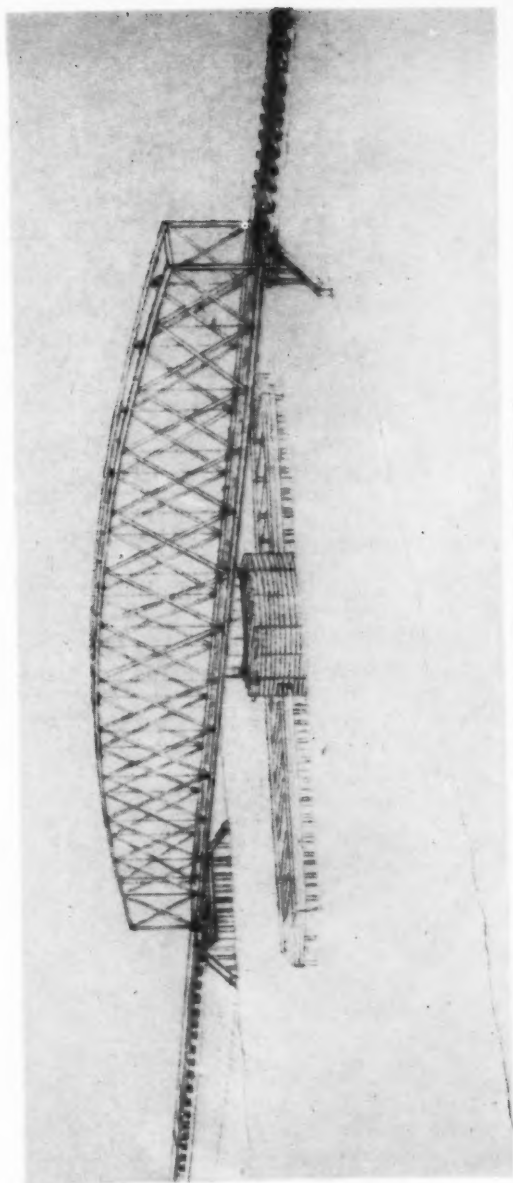
Another factor that may have, and really seems to have, had some influence in the naming of the St. Charles Air Line was a railroad projected from Chicago westward through St. Charles, Illinois, to the Mississippi River at or near Savanna, Illinois. It was chartered January 31, 1849, under the name of the St. Charles Branch Railroad, but on February 3, 1853, its name was changed to Chicago, St. Charles and Mississippi Air Line Railroad. That this road contemplated a connection with some eastern railroad is evident, for on August 8, 1853, a Chicago City Ordinance was passed granting rights to it to "construct a bridge across the south branch of the Chicago River . . . at any point south of Twelfth Street . . . for the purpose of connecting their track with the track of any other railroad."⁽¹²⁾

This was the first railroad projected into Chicago, from the west, that planned for terminals in the vicinity of Twelfth Street, although both the Burlington and North Western Roads later entered that territory. On April 10, 1854, this road passed to the ownership of the Galena and Chicago Union Railroad under the "Articles of Union"⁽¹³⁾ executed on that date. Thereupon this track from Harlem to the Chicago River was designated as the "Air Line Branch" and is so shown on a map attached to the Galena and Chicago Union annual report for year ending December 31, 1861.

Of the various names applied to what is now known as the "St. Charles Air Line," none were the result of official action. The similarity of this name with that of the Chicago, St. Charles and Mississippi Air Line suggests that, although the two companies were in no way connected, it may have been a contraction of the last mentioned name. This view is shared by both the Illinois Central and North Western Roads.

THE ST. CHARLES AIR LINE BRIDGE

The original "draw bridge" was built in 1855, by Stone and Boomer, contractors. It was what is known as a Howe Truss, built of timber, with iron plates and rods. From a copy of specifications under which it was built its length is shown to have been 193 feet, "affording water-way openings of 50 feet on each side of the pivot pier." There were no approach spans, but pile bank blocks were driven, on which, when the draw was closed, the ends of the draw span rested. Back of



The Original "Draw Bridge" of 1855 on the St. Charles Air Line.



The Steel Bascule Bridge of 1917.

these bank blocks was driven a row of sheet piling to prevent "the earth from running into the channel."

From the description in the contract and from various technical books showing pictures of spans of this type being built at that time, the accompanying sketch has been prepared. Diligent search has been made to locate a picture of this bridge but none has been found.

This bridge served the needs of the road from 1855 until 1882 when it was replaced with a Steel Draw Span as shown in the photograph. This steel span served from 1882 until 1917 when it was replaced with a Steel Bascule Bridge that gave clear riverway by eliminating the pivot pier located in the middle of the channel. In 1930 the straightening of the South Branch of the Chicago River was accomplished, necessitating the movement of the Bascule Span some 400 feet west to the new channel.⁽¹⁴⁾

While the Galena and Chicago Union had in 1852 and 1853 constructed a pontoon bridge across the North Branch of the Chicago River, which antedates the Air Line Bridge, this latter bridge was the first railroad bridge over the South Branch of the Chicago River.

AURORA-CHICAGO BRANCH

By an Act of Legislature, February 28, 1854, the Chicago and Aurora Railroad Company was authorized to "construct a branch from its main line from the village of Aurora, in Kane County, to and into the City of Chicago, by way of the village of Naperville."

At this time the Chicago and Aurora and the Central Military Tract Railroads had been completed to Galesburg. The handling of the traffic of these roads over 30 miles of the Galena and Chicago Union Rail Road, between Turner Junction and Chicago, and the use of that road's limited terminal facilities in Chicago, was becoming more and more of a problem; and, besides, the owners of the Chicago and Aurora wanted an independent line into Chicago. Evidently the time for construction of the "branch" had not yet arrived, for it was not until 1859 that the directors decided to proceed.

In the annual report for year ending April 30, 1858, the president stated: "The Company has the right, under their charter, to build a road from their present line at Aurora to Chicago. Surveys have been made, showing the practicability of the route, and that by its construction the line would be shortened by six miles from that used via the junction. The directors believe that the time has arrived when the Company should have an independent line of their own to Chicago, or own an equal interest in that now built."

In the meantime the Galena and Chicago Union had served notice upon the Burlington, cancelling the operating agreement between the two roads, effective May 1, 1859, which notice was, however, modified and the time extended to May 1, 1861. Because of this extension of time the president announced to the stockholders as follows: "This having been done it was not deemed necessary or expedient to take any steps the past year initiatory to the building of an independent line into Chicago."

At the annual stockholders meeting in July, 1859, it was "Resolved, That a committee consisting of John Van Nortwick, John M. Berrien and Amos T. Hall be requested to prepare at an early date, and send to each Stockholder, a circular showing the relation and business connections existing between this Company and the Galena and Chicago Union Railroad Company, and an estimate of cost of constructing an extension of the road of this Company direct to Chicago, and the advantages and disadvantages of continuing to do business under the present arrangements with that Company, and constructing our own line into Chicago . . . with a view to determining the policy which the Company shall pursue in this respect. . . ."

At the next stockholders meeting in July, 1860, on motion of Mr. Colton, "the committee appointed at the last annual meeting to report on the matter of our business relations with the Galena and Chicago Union Railroad, . . . was continued until the next annual meeting in 1861." At the meeting in 1861 the committee was not yet ready to submit report, and it was instructed to continue until the next annual meeting in 1862.

March 22, 1862, the committee submitted its report, which was printed and sent to all stockholders. Copy of this report is of record in the minutes of Board of Directors Meetings. It stated surveys had been made of the route and that the estimated cost was \$700,000 for the 36-mile line. The annual charges for interest on bonds, operation and maintenance was figured to be \$93,000. The average annual payments to the Galena and Chicago Union for the preceding six years had been \$96,512.91, and with increased traffic would in the ensuing six years increase to at least \$110,000. They reported that the construction of line would result in an annual saving to the Company of at least \$17,000 and with new business developed on the "branch" would increase the saving to about \$30,000.

The question of acquisition of a one-half interest in the Galena and Chicago Union between Turner Junction and Chicago was not looked upon with favor by that road, nor did the committee favor such a plan. The report, signed by Van Nortwick, Berrien and Hall, closed as follows: "There seems therefore no other alternative than for this Company to provide at an early day independent means of access to and from Chicago for the vast traffic arising from the district traversed by and tributary to the one hundred and sixty miles of road operated by it, west of the Junction."

At the annual stockholders meeting June 20, 1862, at which the Committee's report was submitted, it was "Resolved, That the Board of Directors of the Company be and are hereby authorized to construct a branch road from the Company's main line in the City of Aurora, in Kane County, to and into the City of Chicago, by way of Naperville, . . . pursuant to authority granted by an act of the Legislature of the State of Illinois, approved February 28, 1854." At this same meeting the stockholders voted to approve the notice given by the president, Mr. Van Nortwick, to the Galena and Chicago Union May 20, 1862, "that use of their line would cease two years later," in accordance with stipulation in the operating agreement.

At a meeting of the Board of Directors July 3, 1862, the President was authorized to proceed with the survey and location of the line to a connection with its Chicago Terminal properties which had been extended westward from the Chicago River to the City Limits at Western Avenue. James F. Joy and E. L. Baker were authorized "to contract and let the grading, bridging, etc., . . . with a view to having said branch road completed between this time and the first of January, 1864." At this meeting it was voted "that John Van Nortwick be and is hereby appointed and is authorized to act as Chief Engineer, in addition to his duties as President of this Company."

Immediate steps were taken, final location completed and acquisition of right of way soon accomplished, for in Annual Report, June 30, 1863, for year ending April 30, Mr. Van Nortwick, as Chief Engineer stated: "Sealed proposals were received for the grading and work let about the first day of October, last." As of date of this meeting he said: "The right of way has all been obtained, about one-third of the grading has been done, and a portion of the materials for bridges and culverts has been delivered, also a part of the iron (rail), spikes and ties. The whole expenditure up to this time has been \$117,888.04."

It was contemplated that this should be a double track line in the immediate future. Instructions were issued that depots and other structures should be located with that end in view. The first section of double track was to extend from Chicago to Lyons (Riverside), about 12 miles,⁽¹⁾ and was included in the original construction of the "branch." Construction progress was rapid during the ensuing year, for in the annual report of year ending April 30, 1864, the president stated that "There has been expended on this work to the first of May, \$755,098.56, leaving to be expended to complete the work, including the double track (Chicago to Lyons) \$245,000."

In the meantime the Galena and Chicago Union had further extended the date of cancellation of operating agreement between the two roads from May 1, 1861, to June 20, 1864, conforming to notice of May 20, 1862.

The president, in his report, June 24, 1864, said: "The new line of road from Chicago to Aurora will be in good order for business on the 20th instant (June 20) when our trains will be withdrawn from the Galena Road, in accordance with the two year's notice given that Company."

The date of opening, June 20, 1864, marked the time when the Burlington owned and operated its own line into Chicago and the cancelling of an operating agreement with the Galena and Chicago Union Railroad which had existed since 1850.

Documentation

for

"CHICAGO TERMINALS"

- (1) Annual report to Stockholders for year ending April 30, 1857. The Galena and Chicago Union Rail Road and the Fort Wayne and Chicago Railroad have long since become the Chicago & North Western Railway and the Pennsylvania Railroad, respectively.

- (2) This road was chartered January 31, 1849, as St. Charles Branch Railroad Company, and construction begun in 1850. On February 3, 1853, the name was changed to Chicago, St. Charles and Mississippi Air Line Rail Road.
- (3) This date is given as the most probable. Considerable correspondence between the author and F. L. Thompson (then Vice President) and C. H. Mottier, Vice President and Chief Engineer, both of the Illinois Central, developed certain others but this date was finally accepted.
- (4) This engine terminal was discontinued December 28, 1949.
- (5) Annual report Galena and Chicago Union, 1855.
- (6) The "Articles of Union" were executed April 10, 1854.
- (7) See Section on St. Charles Air Line.
- (8) C. J. Corliss, *Main Line of Mid-America*, 1950. pp. 218-220.
- (9) F. L. Thompson to A. W. Newton, October 31, 1941. Sedgwick acted as attorney in some of the deeds for Air Line property. There is nothing to indicate he was ever an officer of the Illinois Central.
- (10) W. W. Baldwin, *Chicago, Burlington & Quincy Railroad Documentary History*, 1928, I, pp. 259-261.
- (11) *Ibid.* p. 261.
- (12) *Ibid.* p. 270.
- (13) Annual report Galena and Chicago Union, 1855.
- (14) An interesting note may be appended here. When this bascule bridge was moved at the time of the river straightening it was turned through a 180-degree angle so that the original west end became the east end, the machinery and counter-weights now being on the west side of the river. Two panels were removed at the time of moving so that now its length is 219 feet 4 inches.
- (15) This mileage was evidently figured from the South Water Street Terminal of the Illinois Central-Michigan Central Railroads. Compare Sketch Map.

History, Development and Function of the Locomotive Brick Arch

An article prepared and read by Mr. Chas. Ringel, before the meeting of the New York Chapter of the R. & L. H. Society, on January 16th, 1948.

Mr. Chairman, Members and Friends of the Railway and Locomotive Historical Society, the kind invitation of your Mr. William Phillips to address you tonight is appreciated. As the name of your Society suggests your interest in history, I have selected as the subject of this evening's address, "The History, Development and Function of the Brick Arch as applied to Locomotive Steam Boilers."

A tribute to the work your Society is doing in bringing together men of the railway and transportation fields for the purpose of obtaining knowledge of the various branches of that industry is in order, and I hope that this presentation will contribute to your knowledge and interest.

The American Brick Arch Company was one of the pioneers of the Locomotive Brick Arch, and is the originator of the Security Sectional Brick Arch for steam locomotive fireboxes, which has been standard throughout the world for many years. The modern Security Brick Arch had a number of predecessors which can be classified historically into a number of development stages.

The earliest types of steam locomotives were equipped with boilers, the fireboxes of which were located between the main engine frame, and were usually long and narrow, and of reasonable depth from the boiler barrel to the mud-ring. This provided sufficient space for grates and fuel bed below the flue level. Such a firebox is shown in Fig. 1. It is apparent that this firebox is not very efficient in properly burning fuel and generating steam, because much of the combustible gasses pass into the flues before being properly burned, due to the short, unrestricted path from the fuel bed to the flue sheet. A large area of the upper rear of the furnace walls remains untouched by the hotter combustion gasses, and this important heating surface is not fully utilized.

First Stage. The earliest record we have of a Brick Arch application to a locomotive firebox dates back to the year 1854, and is shown in Fig. 2. This structure was made of commercial brick shapes laid up with mortar, over a wooden frame, built into the firebox in the shape of an arch. From this design the Brick Arch derived its name. The cost of constructing the wooden frame, together with the time required for allowing the joints to dry and the arch to set, made this arch very expensive. Its life was quite short, due to its many small brick shapes, and the inability of the mortar to securely hold the bricks tight against vibration and shocks. However, enough improvement in the efficiency of the firebox and in the steaming of the boiler was noted to realize that the Brick Arch was necessary in a locomotive steam boiler.

Second Stage. In 1857, George S. Griggs, Supt. of Motive Power of the Boston & Providence Railroad, and one of the foremost locomotive men of his day, obtained a patent on a Brick Arch supported on studs in the side sheet.* This arrangement is shown in Fig. 3. The firebox being short, it was possible to obtain an arch of sufficient length with the three bricks shown, the center key brick being held by tongue and groove construction by the two outer, or side, bricks. The size and weight of these large brick shapes made them heavy and awkward to handle, and they were subject to damage or destruction in application.

Third Stage. As fireboxes were continually increasing in size, the length and width of the Brick Arch increased proportionately, necessitating a change in the Brick Arch, as shown in Fig. 4. Here, also, is a stud-supported arch, but with the brick shapes reduced in size, to facilitate manufacture and handling during shipment and application. This form of Brick Arch, with interlocking tongue and groove joints at the center, and supported on lugs on the side sheets, is still common in use in narrow fireboxes, particularly in foreign countries. There was a limit, however, to the width of the firebox which could be safely spanned with the stud-supported arch construction, due to the low tensile strength of firebrick under firebox conditions, and, as firebox widths continued to increase, much trouble was experienced by the brick cracking and falling into the fire, often causing engine failures due to wedging in the grates. It was realized that some form of support in the center of the arch was necessary to keep bricks from breaking under their own weight. This gave rise to the arch-tube design in locomotive fireboxes, and to the

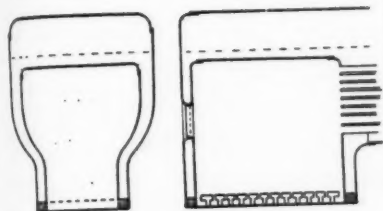
Fourth Stage. The first arch tubes to be applied were of iron, $\frac{1}{4}$ " thick and from 2" to $2\frac{1}{2}$ " in diameter, and extended from the throat sheet up into the crown, near the rear of the firebox, as shown in dotted lines in Fig. 5. These tubes were fastened into the sheets by means of nipples and screw couplings, and no provision was made for cleaning them out. Many failures occurred in this form of application, and much opposition developed against the application of arch tubes.

Some of the trouble experienced with the early applications of arch tubes was overcome by applying them from the throat to the backhead, as shown in the full lines in Fig. 5. Washout plugs were provided to gain access to the inner tube walls for cleaning. However, trouble from blistering and occasional tube failures still occurred in the rather flat, rear sections of these tubes, due to steam pockets forming in this portion.

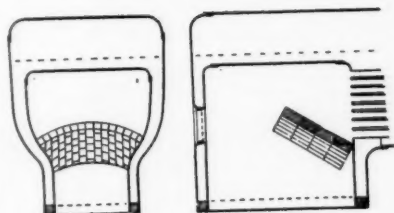
Fifth Stage. The bricks applied to these fireboxes were in the form of flat slabs, with ends formed to suit the firebox side sheet contour, with a slight clearance left along the sides. Here trouble was experienced with the overhanging ends breaking off and falling into the fire, which led to an improved design shown in Fig. 6, where the slabs of brick are cut in half, and less overhang allowed at the firebox sides.

Arch tube sizes were later increased to 3" O. D., and cold-drawn seamless steel, about #7 BWG thickness, was used. A greater slope at the rear portion of the tube avoided the steam pockets, which had caused

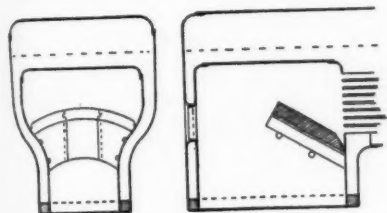
* Mr. Griggs was the builder of many outstanding locomotives, as well as the inventor of numerous locomotive appliances, including the "diamond" stack. Ed.)



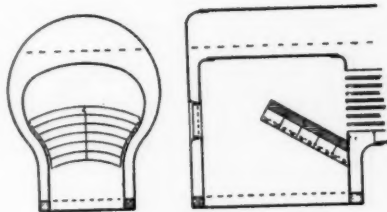
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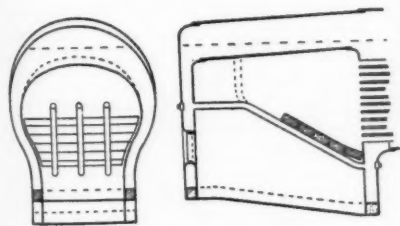
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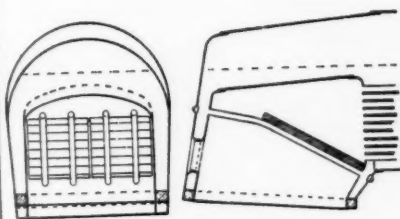
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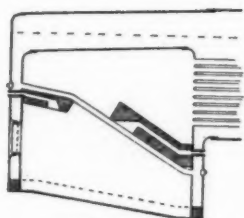
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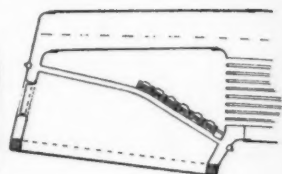
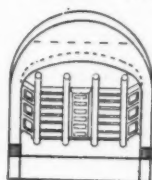
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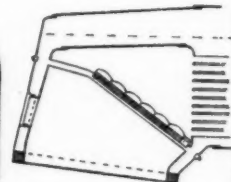
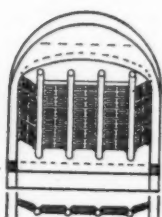
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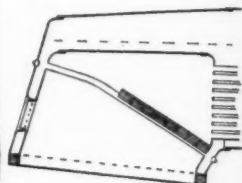
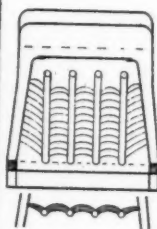
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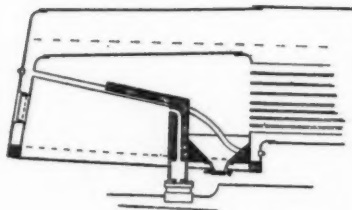
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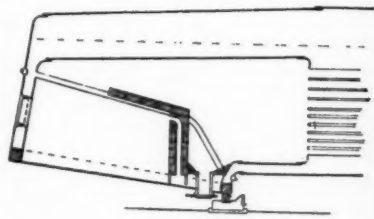
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previous failures. This type of arch gave good results, but still had two undesirable features, one being the size and weight of the brick shapes, and the other the unsupported overhang at the sides, between the outer arch tubes and the side sheets. As each railroad had its own brick patterns and the brick manufacturers used these in supplying brick orders, no standard existed and brick shapes were numerous and not interchangeable.

In 1905, the Wade-Nicholson Hollow Arch was introduced, and extensive tests were conducted during the period of 1905 to 1908. This type of Brick Arch is shown in Fig. 7, and was applicable to both the stud and arch tube support. Air is admitted through tubes in the back-head and throat to the hollow passages in the brick. Good results were obtained with this arch. The pre-heated air, entering the firebox and mixing with the burning fuel, improved combustion and reduced smoke. Cost of this construction was high and it was difficult to keep the air ducts in the brick work aligned.

Sixth Stage. In 1908, further improvements were made in the Brick Arches supported on arch tubes, such as the construction as shown in Fig. 8. The center bricks in this application rest on top of the arch tubes. The side bricks rest on the tapered ends of the center brick, and are inclined toward the firebox side sheet. In order to reduce the weight of the brick shapes, the bricks were cupped out on the under side, giving the corrugated effect shown.

Seventh Stage. In 1910, The American Arch Company was formed, and they introduced the Security Sectional Brick Arch. Through the constant effort of this company, arch tube spacing on all railroads was brought to a standard spacing and parallel arrangement, so that standard Security Brick Shapes could be used. This form of arch is shown in Fig. 9, and is known as the Security Sectional Arch. The ends of the brick were shaped so that the body of the brick rested down between the arch tubes. The side brick were also shaped to fit the arch tube, and the upper ends rested against the side sheets at an angle of about 45 degrees. This design of Security Arch remained standard for many years, and is still in use, with the brick shapes as shown, in many foreign countries.

The advent of the locomotive stoker and the greatly increased firing rates placed a heavier duty upon the Brick Arch. The longer fireboxes required increased length of arch tubes, which, in turn, became more springy and less suitable as a brick arch support, because of greater vibration. The higher firing rates produced greater wear on the under surface of the firebrick, due to the terrific flow of coal and cinder particles entrained in the gas stream. The pocketed bricks wore thin and collapsed in service. Again a demand was felt for a more sturdy arch brick, whose shape would give greater resistance to abrasion than the flat, pocketed brick.

Eighth Stage. Through several stages of development our present standard curved M and S brick were designed and are shown in Fig. 10. We see in this picture the present-day arch as used on American railroads in locomotive steam boilers equipped with arch tubes.

The minimum service of a Brick Arch, as desired by most railroads, is the equivalent of a washout period, generally thirty days. In most instances the standard brick shapes give the required service life. When, however, severe service conditions are met in operation of the locomotive, such as poor coal with heavy slag-forming qualities, which hasten deterioration of the brick and shorten the service life to less than a washout period, heavy duty brick shapes are used. In this manner the arch life is extended to the desired service period.

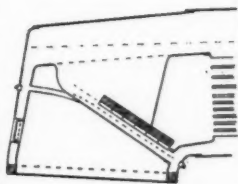
In 1908, the Gaines Wall was introduced and was followed, in 1914, by the combination Gaines Wall and Security Sectional Arch, as shown in Fig. 11. Applications of this type were used in boilers of locomotives with long wheelbases, such as Mallet and 2-10-2 types. The additional furnace volume afforded in this arrangement produced additional fuel economy. Here a firebrick bridge-wall extends across the firebox ahead of the grates, dividing the firebox into two parts, firebox and combustion chamber. The bridge-wall is used in conjunction with the Security Sectional Arch supported on arch tubes, and is carried on a casting extending across the firebox and secured to the mud-ring on each side. The grate frames are supported on this casting, as well as the pipes which hold the bridge-wall in place. A cap casting on top of the wall, with bearing under the arch tubes, forms a brace for the Security Arch to rest against. Fig. 12 shows a similar arrangement applied to a boiler having a combustion chamber.

Although many of these applications are still in use on some of the older locomotives, this type of construction had its limitations as it is not easily adaptable on power with large driving wheels, due to the extreme length of the mud-ring interfering with the wheel arrangement. It was found difficult to keep this firebox tight against air leaks in the portion ahead of the bridge-wall, and maintenance was unduly high. Still, the advantages afforded by the large combustion volume was realized, and the modern, long-combustion-chamber boiler, with large grate areas confined entirely to the firebox ring, was the result.

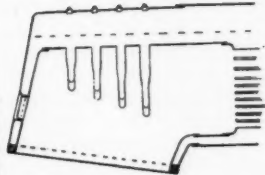
The advantages of the arch tube in producing increased water circulation in the locomotive boiler were realized from the beginning of their application. Apparently, with this thought in mind, the Nicholson Thermic Syphon was patented in 1920. The Brick Arch in this firebox is supported at the front on the syphon necks, and the balance of the arch rests upon the bulged portions of the syphons. Fig. 13 shows a combination syphon and arch tube application.

In 1933, a patent was issued to the American Arch Company covering a Security Circulator arrangement for locomotive steam boilers. This arrangement consisted of circulating elements placed transversely in the firebox, connecting the side sheets with the crown sheet. These Circulators were so located in the firebox that the cross-arms formed the supports for the Brick Arch. These Circulators were formed from plates flanged in halves and welded together, and were strengthened with a row of staybolts through the risers and cross-arms. An application is shown in Fig. 14.

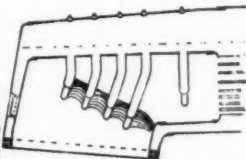
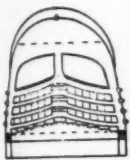
In 1942, the Improved Security Circulator was patented by the American Arch Company. In its improved form the Circulator was



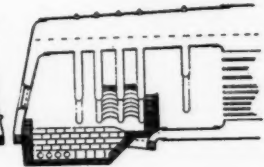
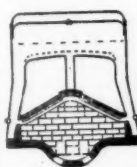
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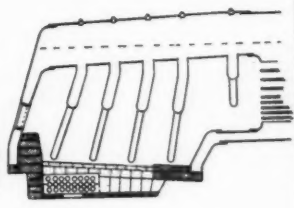
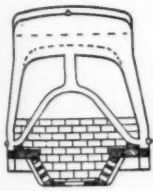
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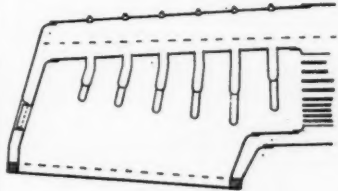
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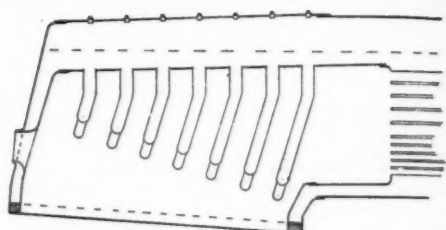
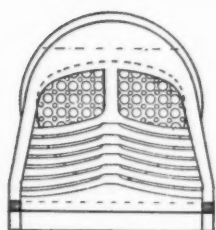
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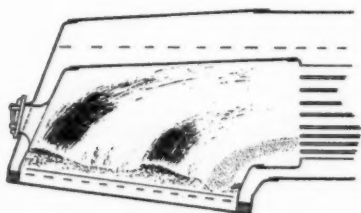
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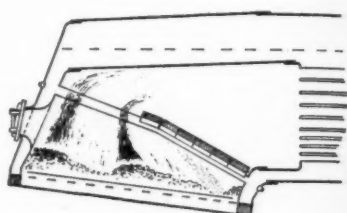
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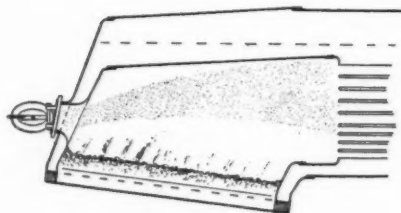
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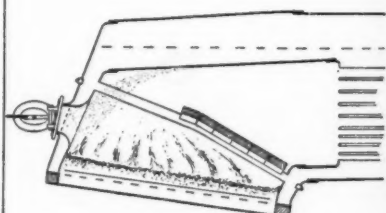
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made of tubular sections joined by a welded Lock Joint, at the connection between the riser and cross-arms. The Standard Circulator has 7" O. D. Risers and 5½" O. D. Cross-arms with ⅜" average wall thickness. An installation for a coal-fired locomotive is shown in Fig. 15.

Aside from giving improved circulation to the boiler water, the Security Circulator, combined with Security Circulator Arch arrangement, provides the most efficient Brick Arch of our modern locomotives. The shape of this arch, with its series of baffles formed by the Circulator cross-arms lying between the arches surfaces of the Security Arch Brick, makes an ideal cinder baffle and slag trap, and, therefore, reduces to a minimum the cinder-cutting and slagging of the flue sheet and other component parts of the boiler.

Efforts have been made to duplicate the shape of the Security Circulator Arch by applying brick shapes, with projections, to baffle the cinders. These projections wear away in a short period of service by the severe cinder and slag action, and result in brick failures. To date, there are some 1400 steam locomotives of all types and sizes equipped with over 6600 Security Circulators, and, thus far, the advent of other than steam motive power has not effected a decrease in the number of annual applications.

Security Circulators are also applied to oil-burning locomotives, and are known as the "GN" and "SF" types. The "GN" type is shown in Fig. 16. These Circulators permit the application of a Brick Arch in combination with the firepan lining. Fig. 17 shows an application of "SF" type Circulator. They are used in oil-burning locomotive fireboxes where no brick arch is desired. They improve the performance of heavy oil-burning power, and increase the service life of the fireboxes.

The high draft that prevails in the locomotive firebox which, at times, reaches a velocity of 150 to 200 M. P. H. at the flue sheet, causes gasses to flow in stream lines from the fuel bed to the flues without proper mixing or diffusion. Fig. 20 illustrates this condition very clearly. It will be seen that the stream lines, heavily laden with volatile combustibles, do not readily mix with those carrying the products necessary for combustion, and pass into the flues unburned.

Fig. 21 shows how the separate stream lines of gasses are mixed when an arch is present in the firebox and the various streams combined, promoting more complete combustion.

The Security Brick Arch in a firebox is also a safeguard against damage to the firebox tube sheet and the tubes and flues. Fig. 22 shows the effect of an open door in a firebox without an arch. The cool shaft of air drawn in by the draft strikes the hot flue sheet and the flue and tube ends, and the rapid cooling causes contraction and possible failure of the flue sheet, resulting in leaking tubes and flues. Fig. 23 shows how this condition is corrected when a Security Brick Arch is present in the firebox.

Uneven firing, resulting in formation of varying depths of fuel bed and banks of green coal, such as shown in Fig. 24, causes fuel losses. Large volumes of gasses of richly-laden hydrocarbons are shut off from the supply of air and are passed out of the firebox unburned. Fig. 25 shows how this condition is corrected by the Security Brick Arch.

Fig. 26 illustrates a common firing practice in maintaining a bank of green coal under the firedoor. Holes in the firebed, admitting cold air streams, are also shown in this picture. These conditions are corrected by the Brick Arch, as shown in Fig. 27.

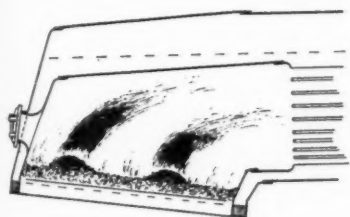
In conclusion, I would point out that the Brick Arch is one of the most important details of our steam locomotive, and the efficient performance of the locomotive is dependent upon the correct design and proper maintenance of the Brick Arch.

(The reproduction of the illustrations for Mr. Ringel's article is made possible through the kindness and excellent draftsmanship of one of our members, Mr. Fred Jukes, of Blaine, Washington, whose illustrations for his own article on locomotive valve gears have received the highest commendation from many of our readers. To Mr. Jukes the Editor hereby extends his thanks for his valued help. Dots in the drawings represent cold air areas in the firebox.)

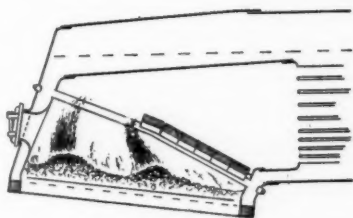
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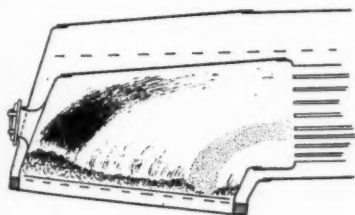
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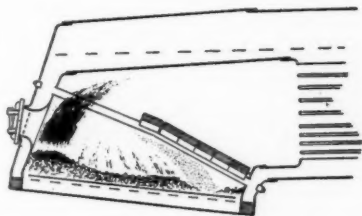
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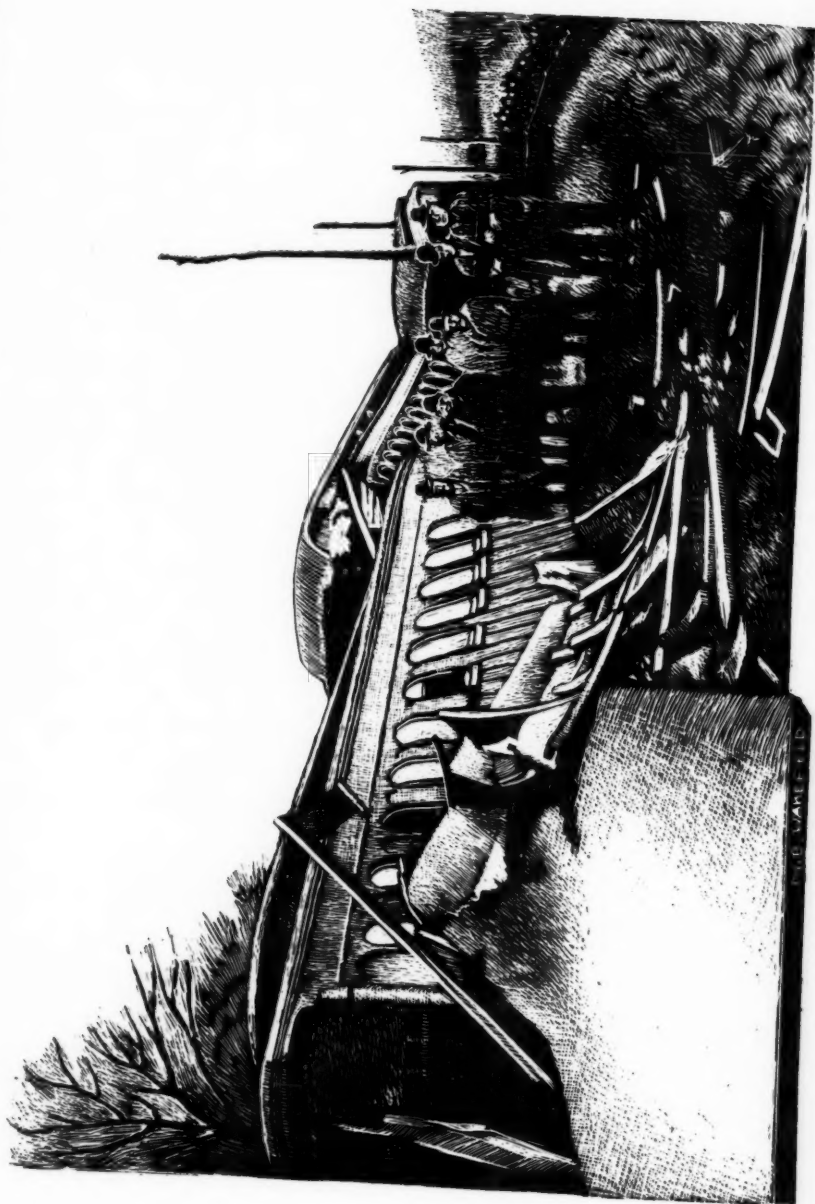
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The 1st, 2nd and 3rd cars and the roof of the 4th car on the embankment.

Disaster at the "Tin Bridge"

By M. B. WAKEFIELD

The reader might well agree that a bridge built of tin would most assuredly meet with disaster of a most serious consequence if constructed, but this bridge officially known as the Bussey Bridge, received this fragile name through the incorporation of tin, during an early alteration of a very superfluous nature, and was in actuality constructed of iron of a seemingly sound nature.

The 7:00 A.M. train from Dedham on the Dedham Branch of the Boston and Providence Railroad had just left the Roslindale Station with engineer Walter E. White at the throttle and Alfred E. Billings acting as fireman, when the appalling disaster struck with horrible suddenness. The train consisting of nine cars Nos. 52, 18, 28, 87, 54, 80, 81 and 82 was powered by the 32½ gross ton engine "Torrey" built in 1880 by the Rhode Island Locomotive Works. The combination smoking and baggage car #1 carried the rear marker flags on the illfated consist. Aboard the train were 275-300 commuters bound for Boston. The bridge was located about ⅓ of a mile from the Roslindale Station on a grade of 50 feet to the mile.

Engineer White, a veteran of 30 years on the Dedham Branch claims that when he struck the bridge everything seemed to be allright; that he did not notice any settling or swaying, but when he came to the Boston end of the bridge he saw the forward end of the engine come up with a jar, and when the drivers came along there was a definite shock. Looking around he discovered that the forward car was off the track with a smashed coupler and was rapidly sliding off to the east side of the right of way. Naturally engineer White's first impulse was to stop, but instead he reversed his engine when he again looked back to discover that the first and second cars were completely off the tracks and also that a dense cloud of smoke was arising from the abutment, which indicated to him that the cars had gone through the bridge. Mr. White knowing that he and the fireman could not do much themselves, highballed the engine toward Forest Hills blowing the whistle constantly to bring the people of the sleepy town from their homes to aid the injured. This quick thinking resulted in the arriving of first aid to the scene sooner than it would have arrived under normal conditions. The primary reason for getting up steam and racing to Forest Hills was the knowledge of another train that was going down to Dedham to work on another bridge. Arriving at Forest Hills, engineer White informed Mr. Worley to align the switch so Mr. Prince's work train could back up to the wreck. Running down to Prince's train, White bellowed up to the cab to inform him of the disaster and then directed the station agent to telephone for doctors and ambulances. After Prince had taken his train up to the wreck, engineer White followed with his. It was due to this wise action of White's that notice of the catastrophe was immediately received at the office of the superintendent of the road. The police and fire departments were subsequently summoned and physicians and surgeons were secured and promptly taken to the wreck.

When the hysteria and confusion had abated somewhat, the cata-

clysmic effect of the wreck was brought sharply into focus. It was found that there was a slight depression in the bridge as the engine left it, resulting in the shock noted by engineer White. This depression had increased when the first car left the bridge, so that as it went up off the bridge it jumped the track to the east, its rear trucks being torn from it. The second car dropped still further, receiving a much more severe concussion at the end of the bridge; but the train of seven cars behind it crushed into its rear and threw it up over the edge of the abutment, displacing both its trucks, and leaving them under its rear end.

When the second car struck the abutment the third car was driven against it with such force, that car being just upon the point of leaving the solid part of the bridge at the middle of the truss—that its Miller platform was crushed on top of and into the platform of the second car, and became inextricably entangled with it. This may have saved the third car from going into the street, as it must have formed a very strong and close connection between the two cars, which in turn helped greatly to carry the front end of the third car over the chasm. As it was, this car lost both trucks, its floor systems were almost demolished and its sides were shattered and loosened at every joint. It was found on the embankment a few feet behind the second car, having lost its front platform, which had finally been torn out and remained entangled with the rear platform of the second car. The fourth car was not able to leap the chasm. It had not, however, fallen so far that its roof did not come above the line of the abutment. This car was stopped by the abutment but the roof continued and landed on the embankment. The front end of the body of the car, striking the abutment at an angle of twenty-one degrees, was crushed in for about half its length, and the remainder of the car veered off to the left or west side of the track, and fell into the street landing on its right or east side. The illustration shows these cars as they appeared following the crash. The fifth car followed the course of the remnants of the fourth car, struck its rear end, and was telescoped by it for half its length. The sixth car fell diagonally across the street. It was badly broken and twisted, and its top was nearly torn off. The seventh car landed in the street upright, and was the least damaged of those which went through the bridge. The eighth car landed in the street, behind the seventh car, which was tipped to the east side, and was badly shattered. The ninth car, being the combination smoker and baggage car turned over and landed in the road upside down. Most of the resulting twenty-three dead, with the exception of a few, who were instantly killed, were found in the wreckage of the fourth, fifth, sixth and ninth cars. A large number of the more than one hundred injured were found in these cars also.

A very thorough investigation was launched by the Massachusetts Board of Railroad Commissioners immediately following the disaster. The Brussey Bridge was formerly a Howe truss wooden bridge. At that time portions of it were tinned to prevent it from catching fire, and it then acquired the name of the "Tin Bridge," as was mentioned previously. In 1870, the westerly wooden truss was replaced by an iron rectangular truss made by the National Bridge Co. of which Mr. C. H. Parker was engineer. The bridge was then a nondescript bridge, having

one iron and one wooden truss. In 1876 the railroad company removed the wooden truss, changed the Parker truss from the west side to the east side of the bridge, and had a new iron truss put on the west side. It appears that the railroad company employed no expert to pass either upon the original design of the bridge or upon the bridge after it was constructed, and in fact no one was consulted regarding its capacity load.

The testimony of the passengers, employees on the train and of two outside witnesses shows conclusively that the trouble originated on the north half of the bridge; and the evidence as a whole clearly indicates that the original cause of the disaster was the breaking of the hangers at the joint-block at the north end of the Hewins truss. These hangers were found in the street, and were examined by several people, including one of the Commissioners on the morning of the accident. They were broken, the upper loops with part of the shank remaining in the joint-block and the lower loops with the remainder of the shank lying near by.

One hanger was broken through the shank, and about seven eighths of this break was old. In the other hanger the lower loop was broken on the side at its junction with the shank. At the shank there were indications of an old break through about one-eighth of the sectional area. The hangers should have been die forged, however, they were loop welded, and the weldings were imperfect.

The hangers held up the floor beams. When the floor-beams fell, the floor system would fall, and yet it never occurred to the man who was supposed to have superintended the construction of the bridge, and to whom was entrusted the examination of the bridge every spring and fall,—it never occurred to him that the strength and condition of these hangers were vital and should have been an important feature in his examination. Moreover, he did not know how the hangers were made, his suppositions in regard to their size and shape were incorrect, and he did not have, nor did the road have any drawings showing their construction and dimensions.

The eccentricity, so called, of these hangers were unnecessary. The eccentricity caused the strain, to be transverse and unequally distributed. In consequence, thereof, the hangers were for their work in the bridge not nearly as strong as the same amount of material would have been had they been properly designed. Portions of them, without making any allowances for the jar of the train, were subjected by each passing engine to strains approaching if not in excess of, the elastic limit. The margins of strength, if any, was so small as to be inconsistent with safety. Iron will surely break if repeatedly subjected to a load which strains it materially beyond its elastic limit. The hangers had been breaking for some time, with the net result that on the morning of the accident there was little more than the equivalent of one hanger left. In short the hangers were unfit for their work.

It seems very probable that the Hewins truss stood up until the cast-iron joint-block, in which the broken hangers were located, was struck by the fourth or fifth car. This blow knocked out laterally the block and the two adjoining members and the truss fell to pieces carrying with it the illfated Dedham branch local with its cargo of early morning commuters.

Worth Reading

compiled by

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BOOKS AND PAMPHLETS

Activité et productivité de la S.N.C.F. en 1955. 44 p. illus., maps. Paris, France, French National Rys., Liaison et Information Financières, 1956. Free.

Airlines . . . "Yesterday, today . . . and beyond tomorrow." 32 p., illus. New York 5, Merrill Lynch, Pierce, Fenner & Beane, 1956. Free.

The American Motor Transport Industry, by Neil J. Curry, president, American Trucking Associations. 40 p., illus., 1956. Cambridge, Mass., Bellman Publishing Co., P. O. Box 172. \$2.00.

American Railway Engineering Association. Proceedings of the 55th Annual Convention, Chicago, Ill., March 13-15, 1956. 1200 p., illus., graphs, diags. Will be published in August. Chicago, Ill., The Association. \$8.50 to members. \$10 to non-members.

Availability of Information from Federal Departments and Agencies, by Committee on Government Operations, U. S. House of Representatives. vii, 306 p. (It's 25th Intermediate Report published as 84th Congress, 2nd. session. House Report No. 2947) Washington, D. C., U. S. Govt. Print. Off., 1956, but not for sale at The Supt. of Documents Office. Apply to Committee for copies.

A Bill To Provide for the Issuance of a Special Postage Stamp In Honor Of Kate Shelley and Other Women of the United States Associated With American Railroading. 84th Cong., 2nd. sess. H.R. 12330, introduced July 20, 1956 by Rep. James I. Dolliver of Iowa.

British Transport Commission. Eighth Annual Report & Accounts 1955. Vol. 1, Report; Vol.: Financial & Statistical Statements. London, Eng., Her Majesty's Stationery Office. V. 1, 4 shillings; II, 7 shillings 6 pence. Summary in The Railway Gazette, July 6, 1956, pp. 10-12, with comment: Eighth Year of State Transport, pp. 3-4.

Chessie's Road, by Charles W. Turner. xi, 286 p. illus., maps including end-paper maps of the C & O, ports., tables. Richmond, Va., Garrett & Massie, Inc., 1956. \$4.90.

Compagnie du Chemin de Fer du Bas-Congo au Katanga 1906-1956. 199 p., illus., maps. Brussels, Belgium, M. Weissenbruch S.A. [1956] No price given.

Design of a Railway Mobile Gamma Source for Industrial Irradiations, by L. E. Brownell and others. April 1956. viii, 41 proc. 1. U. S. Atomic Energy Commission Contract No. AT (11-1)-162. Ann Arbor, Michigan, Engineering Research Institute, University of Michigan. No price given.

The Development of the Railway Network of Southwestern Ontario to 1876, by James J. Talman. Map. Apply to author, University of Western Ontario, London, Ontario. 8 p.

The First Quarter-Century of Steam Locomotives in North America, by Smith Hepstone Oliver, curator of land transportation, U. S. National Museum. "Remaining Relics and Operable Replicas with a Catalog of Locomotive Models." frontis. in color, 112 p. incl. illus. U. S. National Museum Bulletin 210, for sale by Superintendent of Documents Office, U. S. Govt. Print. Off., Washington 25, D. C. \$1.00.

The Impact of the Railway on a Pioneer Community, by James J. Talman. 12 p. Apply to author, University of Western Ontario, London, Ontario. "Canada West at mid-nineteenth century may rightly be called a pioneer community . . . The wretched condition of the roads. . . was a byword. . . ."

"*Integration of Information Handling*"—Proceedings 1956 Spring Meeting, April 17-19, 1956, Railway Systems and Procedures Association. ii, 147 p. \$5.00, from R. E. Hoyne, Ex. dir., RS&PA, 357 Union Station, Washington 2, D. C.

John F. Stevens: Basic Architect of the Panama Canal, by Daniel J. Flood, Representative from Pennsylvania. Address before The Panama Canal Society of Washington, D. C., May 12, 1956. 8 p. Reprinted from the Congressional Record, May 29, 1956 "(Not printed at Government Expense)" and available on request to The Panama Canal Society of Washington, D. C., 2825 29th Pl., N.W., Washington 8, D. C.

125 Years—People, Progress & Products—A Story of 125 Years of Wire Making, by American Steel & Wire Division, United States Steel Corporation, Cleveland, Ohio. cover-title, 24 p., illus. Free. Railroads, pp. 16, 19, 22, mentions connection between an earlier end of fashion in women's hoop skirts and increase in demand for wire for construction of railroads to Pacific Coast.

. . . *The Port of New York Authority. A Selected Bibliography of Publications by and about . . . 1921-1956*. [vi] 66 p. Dated June 1956. New York 11, The Port of N. Y. Authority. No price given.

Public Relations of the Railroad Industry in the United States—A Bibliography 1808-1955, compiled by Helen R. Richardson, reference librarian and published by Association of American Railroads, Bureau of Railway Economics Library, Washington 6, D. C. vii, 146 p. Part I—Introduction of Railroads to the Public 1808-1869. Part II—Railroads and Public Relations 1870-1955. Free on request to BRE Library.

Rail Transport and The Winning of Wars, by Gen. James A. Van Fleet, U. S. Army (Ret.), Commanding General, 8th Army, Korea, 14 April 1951 - 11 Feb. 1953. cover-title, 72 p. incl. illus. Washington 6, D. C., Association of American Railroads. Free. *Railroad Planning for Defense . . . A Guide* [1956]. 24 p. illus., may also be obtained from the Association of American Railroads.

Railroad Passenger Service—Costs and Financial Results, by Stanley Berge. 80 p., illus. Evanston, Ill. Northwestern University School of Commerce, July 1956. \$2.00.

Railway Transport in India, by U. S. Department of Commerce. Its World Trade Information Services Part 4—No. 56-4. Washington, D. C., Superintendent of Documents Office. 20 cents. Ed. summary, Railway Gazette, London, England, July 6, 1956, pp. 5-6, mentions:

"... Attention is rightly drawn to the fact that, unlike those in many other countries, the Government-owned railways—consisting of virtually the whole Indian system—are self-supporting. . . ."

The Railways of New South Wales 1855-1955. 304 p., illus., maps, photos. Sydney, New South Wales, Australia, Department of Railways, N. S. W. "... In publishing this volume, the first comprehensive account of the construction and development of the largest State-owned railway system in the southern hemisphere, . . ." No price given.

Short Line Junction—A Collection of California-Nevada Railroads, by Jack R. Wagner. [x], 266 p., illus. [1956]. Fresno, Calif., Academy Library Guild, Box 549. \$4.75. "... tells the story of seven of the most picturesque little railroads in California and Nevada."

The Suez Canal—A list of references to material in the Library Files, August 1, 1956. 10 mimeo. 1. Publications from 1855 to August 1, 1956, to which many additions have been made since August 1. Washington 6, D. C., A.A.R. BRE Library. Free.

Super-Railroads for a Dynamic American Economy, by John Walker Barriger. xi, 91 p. New York 7, Simmons-Boardman Pub. Corp., June 1956. \$2.00. "... The basic elements of the railroad problem—physical, financial, and managerial—which will control the ability of the railroads to modernize plant and service are treated in this study. . . . The opinions expressed herein are solely those of the author, personally, and do not reflect the views of his employing railroad or any of his other connections, present or past." p. vi.

Tomorrow Is Here . . . G.E.'s Gas Turbine-Electrics Open Up New Era in Railroad Motive Power. 8 p., illus. part in color, diagrams, Schemetady, N. Y., General Electric Co. Free.

United States Army in World War II. Technical Services. The Transportation Corps: Movements, Training and Supply, by Chester Wardlow, Office of Military History, Dept. of the Army. 564 p. Illus. Washington 25, D. C. U. S. Govt. Print. Office. \$4.25.

ARTICLES IN PERIODICALS

Centennials by the Rails. Wilmington, Delaware, Morning News, June 19, 1956, p. 18. "... Down near Dover the little Kent County town of Wyoming is celebrating its centennial this month—and thereon hangs the story of the impact of the Delaware Railroad and its branches upon the pattern of life in one of the oldest-settled parts of America. . . ."

Il Cinquantenario del traforo del Sempione 1906-1956 — Cenni storici, by Livio Jannattoni. Ingegneria Ferroviaria—Rivista de Trasporti, Rome, Italy, Maggio 1956, pp. 391-402, CXXIII-CXXV [folded maps]. Illus., Diagrams of Simplon Tunnels.

Divide and Ruin, by Edward C. Kirkland. The Mississippi Valley Historical Review, June 1956, pp. 3-17. "... Charles Elliott Perkins, president of the Chicago, Burlington and Quincy Railroad, provides my text. . . ."

... *Gentlemen, your slips are showing! What shippers really think* . . ., by Nancy Ford. Modern Railroads, July 1956, pp. 61-64.

Indian Railways, Vol. 1, no. 1, April 16, 1956—date. Illus. New Delhi, India, Railway Board. Joint Director, Public Relations. A quarterly.

Kate Shelley 75th Anniversary Memorial Dedication, Boone, Iowa, July 6, 1956. Program; picture of plaque "to perpetuate the example of Kate Shelley . . . with enduring gratitude to the Women of Railroad-ing; ". . . Only Rail Heroine Honored by Name of Train"; Text of Kate's Own Account; "Kate Shelley, 1865-1912—Railroad Heroine. A Bibliography. Part I. General Collections [and] 1881-1884," compiled by Elizabeth O. Cullen. Illustrated. The Conductor and Brakeman, Cedar Rapids, Iowa, June 1956, pp. 156-169. *Many Join in Kate Shelley Tribute* [and] . . . *Bibliography. Part II, 1886-1912.* Ibid, July 1956, p. 188 and 195-197. . . . *Bibliography. Part III, 1923-1956* will be printed in August issue.

The Man Who Thought of the Underground, by Herbert Grimsditch. Everybody's Weekly, London, England, March 17, 1956, pp. 20-21, 38. Illus. ". . . Run railways below street level with houses on top? Foolish lawyer's notion, they said in 1850. But Charles Pearson solved London's first great traffic problem."

New Roads: Changed Business Pattern Ahead. Nation's Business, July 1956, pp. 32-33, 92. ". . . History's biggest public works program is to start soon. What will the new roads mean to you."

New Zealand Railways Locomotive List 1955. New Zealand Railway Observer, November-December 1955. Supplement 3.

Opportunities for Rapid Transit in the Use of Railroad Rights of Way, by John I. Williams. Mass Transportation, July 1956, pp. 15-20. Illus.

Oregon & California Railroad Company—"S.P.'s Siskiyou Line," by David F. Myrick. Illus., maps, locomotive roster. The Western Rail-roader, July 1956. Issue No. 201, pp. 3-18.

Our Last Rimutaka Excursion [and] *The 5½ mile Rimutaka Tunnel Is Opened; Wairarapa's Dream Comes True At Last!* New Zealand Railway Observer, November-December 1955, pp. 85-87 and 101-104. Excursion over Rimutaka Incline, Oct. 16, 1955—it was closed at end of that month. Official opening of tunnel, Nov. 3, 1955. "Apart from the actual opening of the tunnel, perhaps the most noteworthy of the day's events was the first appearance of 'Df' and 'Dg' class diesel-electric locomotives in the Wairarapa district . . . Wairarapa residents also saw for the first time the new 88-seated articulated railcars which, from the following day, instituted a new, fast passenger service . . . For the sake of posterity it may be recorded that the locomotives employed were 'Df's' 1502, 1504 and 1508, and 'Dg's' 751 and 752, and that the railcars were 'Rm' 100 and 'Rm' 102. . . . (p. 103).

Peiping Pushing Rails to Open Up Northwest, by David Chipp. Washington Post and Times Herald, August 14, 1956, p. 6. Map. Reuters dispatch from Yuman, Kansu Province, China. One line from Luchow to Yuman in operation for oil trains since early July.

Railway Age—Centennial Issue, September 17, 1956. New York, Simmons-Boardman Publishing Corporation. Illus., Maps, Facsimils.

Railway-Controlled Air Freight Service. 1. *New Zealand air link between sections of railway separated by sea.* 2. *Operation of mechanized loading system; carriage of railway wagons in freight service.* The Railway Gazette, London, England, June 29, 1956, pp. 587-588; July 6, 1956, pp. 13-14. Map and illustrations.

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Rock Island Rolls Out the Jet Rocket. Steel Horizons, No. 2, Second Quarter 1956, pp. 1-15. Illustrations.

The Southern Yard at Chattanooga . . . Efficient is the key word. Railway Signaling and Communications, July 1956, pp. 30-40. Aerial view of yard, diagram, illustrations. Has automatic control for power switches and retarders, Television for "grabbing" car numbers, Picture film record, Radio and special talk-back loudspeaker for complete communications.

Train X Takes to the Rails—New York Central's Xplorer becomes the first Train X to operate in regular service. It combines with a new type diesel-mechanical-hydraulic locomotive, by Frank Richter. Modern Railroads, July 1956, pp. 97-116. Illus. ". . . Every day the new combination makes a 520 mile round trip in high speed revenue service between Cleveland and Cincinnati. . . ."

Vicissitudes of the South Carolina Railroad, 1865-1878. A Case Study in Reconstruction and Regional Traffic Development, by James F. Doster. The Business History Review, June 1956, pp. 157-195.

We Honor the Father of Texas Railroads—SP restores a monument to General Sidney Sherman, Hero of San Jacinto. SP Bulletin, Texas and Louisiana Lines, June 1956, pp. 2-5.

Whistle Stop, by Ejler Jakobsson. Railroad Magazine, August 1956, pp. 12-26. Illus. ". . . Lincoln started it, and since then nearly all of America's presidential nominees have campaigned by rail, haranguing the crowds from the rear platform. . . ."

Yarmouth-Bar Harbor Ferry Service. Canadian Transportation, July 1956, pp. 417-419. "Mr. Bluenose" formally went into service on June 9, 1956.

New Books

RED FOR DANGER, by L. T. C. Rolt. 220 pages, $8\frac{1}{2} \times 5\frac{1}{2}$. Illustrated. Distributed by The Macmillan Co., 60 Fifth Ave., New York (11), N. Y. Price \$3.50.

For one hundred years, between the Board of Trade and, since 1920, the Ministry of Transport, railway accidents in Great Britain have been investigated by these bodies. This duty has always been carried out by officers of the Royal Engineers and the names of Colonel Yolland, Major-General Hutchinson, Colonel von Donop and Colonel Sir John Pringle should be associated with these bodies and with the building up of the railway system and service as it is today.

The author has had access to these official records and he has made good use of this privilege. It is not a heterogeneous collection of accidents, rather, they have been selected and grouped with uncommon care. We have the fate of the Flying Scotsman in the blizzard at Abbots Ripton and the frantic and fruitless efforts of the staff to avert a second catastrophe; the sequence of fateful mistakes which caused the head-on collisions at Norwich and Abermule; the disasters in the high Pennines at Hawes Jet. and Ais Gill; the structural defects of the first Tay Bridge which led to its fall while a train was crossing one evening of December, 1879 and the packed runaway coaches of the Warren Point excursion train rushing down the Armagh incline. While it is true that all have their tragic side, there is also the comic as in the case of the runaway locomotive on the Somerset & Dorset line. Although each story is complete in itself so that the reader can select at will, he will find the author has written in such an interesting fashion that it is difficult to drop his reading. A chronological list of accidents, together with the pages on which they may be found makes the work valuable for reference.

The Board of Trade only had the power to investigate and report on these accidents. They had no power to compel the railroad companies to adopt many of the safety devices then on the market or change their form of operation. Sooner or later the management had to fall into line and in this regard, it is interesting to note that the managements of our own American railroads seemed to be no better and no worse in this respect. One road in England, the Great Western Ry., stood out above the others just as some in this country adopted safety devices and a form of train operation which placed them ahead of the others.

It is something of a paradox that these disasters helped make the British railway systems the safest in the world. Thus, this book is a chronicle of disasters as well as achievement during these one hundred years. The author is to be congratulated in his selection of material and in his form of presentation and to those of us that are interested in railways, this book should have a very positive appeal. It would serve as an excellent pattern for a work of this sort in this country.

THE GREAT LOCOMOTIVE CHASE, by MacLennan Roberts. 160 pages, $6\frac{3}{8} \times 4\frac{1}{4}$. Published by Dell Books, 200 Fifth Ave., New York (10), N. Y. Price 25c.

The story of "Andrew's Raiders," their seizure of a Western & Atlantic Ry. train at Big Shanty on April 12th, 1862, by means of which they hoped to cut off supplies from Atlanta to the Confederate forces in Chattanooga by destroying the road and their pursuit on foot, by hand car and by locomotive of William Fuller, the conductor of the train, has been told many times. While no one wishes to detract from the bravery of Andrews and his band of volunteers, but for sheer courage and tenacity, the award must go to conductor Fuller. Had the seizure taken place the day previous, as planned, there would not have been any delay at Kingston waiting for those southbound passenger trains nor would William Fuller have been conductor of the train when it was seized at Big Shanty.

The author has introduced the time element in this story in that the reader can know what each party was doing and where it was located from 5:30 A. M., when the "raiders" boarded the train at Marietta, Georgia to 11:07 A. M., when the "Texas" finally overtook the "General" near Ringgold. A valuable addition is the postscript contributed by Wilbur G. Kurtz, son-in-law of William Fuller. Mr. Kurtz has made a lifetime study of this episode and this postscript does much to add to the interest and value to the account of the author. The film on this episode, by Walt Disney, will be well worth seeing and a copy of this little volume will be well worth owning.

THE RAILROADS OF THE SOUTH, by John F. Stover. 310 pages, 9 x 6. Published by The University of North Carolina Press, Chapel Hill, N. C. Price \$5.00.

This book is a study in finance and control of our southern railroads between the years 1865 and 1900 and admirably supplements "The Railroads of the Confederacy," by Robert C. Blank, III, published in 1952 by the same publisher of this volume.

The author commences his account with such railroads lying south of the Ohio and east of the Mississippi rivers at the close of the Civil War, he pictures their plight at the close of that conflict and then takes us through the "carpet-bagger era," the financial troubles of the early seventies and then the flow of northern money and with it control in their hands ending his study at the turn of the century. The author wisely selected for his study only such railroads as were one hundred miles in length or over.

One of the first efforts to weld some of these southern railroads into a rail system was undertaken by Thomas A. Scott, President of the Pennsylvania R. R., but the Panic of 1873 caused that railroad to sell its stock holdings. In the years that follow we see the Illinois Central taking control of the railroads that would bring their line to New Orleans; the Louisville & Nashville emerges as one of the major systems of the south; the Southern formed by the defunct Richmond & Danville, with the aid of the House of Morgan, was created after the Panic of 1893 and finally we witness the formation of two newer systems—the Atlantic Coast Line and the Seaboard Air Line. The story is enlivened with many personalities such as the ex-Confederate generals like Beauregard and Mahone, railroad builders such as Milton H. Smith of the L & N and financiers such as Huntington and Flagler. All in all, the

author has presented a very clear picture of the conditions during those three and one-half decades and he has done it in a very interesting fashion.

The maps that accompany the chapters showing the growth of the different railroads are very well done but the one on pp. 192 showing the railroads of the south in 1880 and new construction to 1890 should have been given a wider spread as the details are lost in this small map. Furthermore, this reviewer does not quite relish the reference to the American Railroad Journal as a mere collection of railroad prospectuses. Although his statement on pp. 278 relative to the American type locomotive is true, in the main, his reference thereto might lead to considerable explanation to those in the motive power field.

By and large, the author has presented a very fine and useful account of the southern railroads during this period, a section which heretofore has been overlooked and for which there has been a need for a very careful survey. This book appears to have filled this need.

TRAVEL & TRANSPORT THROUGH THE AGES, by Norman E. Lee. 187 pages, $8\frac{1}{2} \times 5\frac{1}{2}$, illustrated. Published by the University Press, Cambridge, England. Copies may be obtained from Cambridge University Press, American Branch, 32 East 57th Street, New York (22), N. Y. Price \$2.50.

The first edition of this book was published in Australia and large parts of it first appeared as weekly articles related to the school broadcasts in that country. The revised edition contains additional material as well as a series of illustrations.

Commencing with the Stone Age, about 20,000 years ago, the author traces the different forms of transportation down to the present and, in the space at his disposal, he has done a very fine piece of work. Until about 1829, the fastest speed at which man could travel was from twelve to fourteen miles an hour, the speed at which a horse could trot on a good road. Since that time the speed at which we can move from place to place, thanks to the 'plane, has increased by leaps and bounds. On the other hands, the Romans, despite their skill in many things, it took them nearly 1000 years to learn to fit a collar on a horse whereby he could become a draft animal. Better forms of transportation have resulted in national rather than in local patriotism and this reviewer is heartily in accord with Victor Hugo that the history taught in our schools which was a succession of kings and their wars should be changed to the great inventors and what they had done for humanity. History shows that we owe our improvements in transportation to men of all races and colors: to the Chinese sailors who developed the compass, the Arab sailors who spread the lateen sail as well as to such Englishmen and Americans as James Watt and Robert Fulton.

Altho this book is prepared for young readers, the average "grown-up" should find plenty to interest him and, it is the type of book, with Christmas not far distant, that the younger generation should be encouraged to read. It is far from dull.

HUGH ROY CULLEN, by Ed Kilman and Theon Wright. 376 pages, $8\frac{7}{8} \times 5\frac{3}{4}$. Illustrated. Published by Prentice-Hall, Inc., 70 Fifth Ave., New York (11), N. Y. Price \$4.00.

This is the story of opportunity in America, seldom found elsewhere in this world. From wrapping candy in a candy factory at three dollars a week, he next became a cotton broker in Oklahoma. Not satisfied with that, he became interested in oil and his knowledge of "creekology," which he learned the hard way soon brought him the title of "king of the Texas wildeatters." Fortune smiled on his efforts and after seeing that his family were comfortably provided for, he proceeded to give away most of it—some \$160,000,000.00 of oil properties.

Denied an education for himself, he has seen to it that others have had this opportunity through his philanthropies. His success as a cotton broker was due to his integrity and this trait followed him to Houston, Texas. If he had an uncanny ability to locate a "gusher" on ground that had already been worked over or the geologists had reported "no oil," it was because of his knowledge of the sub-strata formations that caused his success.

His willingness to share his good fortune with those less fortunate, irrespective of race, creed or color and his willingness to do it while he was alive, mark him as a very wise man. The University of Houston, the hospitals of that city and other institutions in that great state have all received his gifts. Thus he has given back what he has taken from the ground.

No reader cannot but help admire his pluck and persistency, his difficult and dangerous work and no one should begrudge him a penny of his reward. But this reviewer feels that perhaps his greatest effort was his single-handed effort to arouse the American public of the dangerous New Deal and subsequent Fair Deal of the Roosevelt and Truman administrations. A great many of us shared his views, even tho' we were outvoted but American enterprise can never be a success under a dictator or "straight-jacket" regulation in Washington.

Hugh Roy Cullen came from good Texas stock. He had a wonderful mother who not only taught him the best books to read but taught him the Christian virtues. His wife was a capable helpmate, one who was by his side in both good fortune and adversity. Such a mother moulded his character and such a wife gave encouragement when needed.

While it is true that our members will find nothing relating to the Texas railroads in this book, at the same time it does us good to learn of success—success through initiative and hard work. We need more men of Roy Cullen's integrity, more with a willingness to share their good fortune and lastly, more with a willingness to stand up and be counted for what they know is wrong and which is contrary to everything that made this a great Nation. Yes, we need more mothers like his mother as well as his wife. And may the twilight of their lives be their best years that they so richly deserve. If this book is an inspiration for our youth, it should also be one to direct their steps down the path of life—a book that is well worth reading many times.

A PICTURE HISTORY OF RAILWAYS, by C. Hamilton Ellis. 160 pages, 8½ x 11. Four Hundred Illustrations. Copies may be obtained from the Macmillan Co., 60 Fifth Ave., New York (11), New York. Price \$5.95.

In the limited amount of space at his disposal, the author briefly

traces the revolution caused by the introduction of the steam locomotive and the growth of the railway. It serves as a pleasant introduction for the pictorial section which includes most of the volume.

Since the railway had its birth and origin in England, the railways of that country, both in the text and in the pictures have been favored. But the United States of America, Canada, New Zealand, South Africa and other countries, have not been overlooked. The subjects have been selected with no little care, certainly they are of interest and they are well reproduced.

No doubt many an American will be disappointed that a string of American 4-4-0 type locomotives have not been included in the reproductions or some from his favorite road, which ever it may be. No one denies the 4-4-0 type of locomotive did yeoman service in this country but, there are other types fully as important.

To this reviewer, the author has achieved something of a success in that his brief history accompanied by the numerous illustrations and the descriptive matter relating to each has given an interesting insight to the railways of many countries throughout the world. You could look farther and do much worse for a Christmas present.

MINISINK VALLEY EXPRESS, by Gerald M. Best. 93 pages, 9 x 6. Illustrated. Privately printed. Copies may be obtained from the author, 511 North Sierra Drive, Beverly Hills, California. Price \$3.00.

Born and brought up in Port Jervis, N. Y., the author has traced the outgrowth of the original Monticello & Port Jervis R. R. through its change to the Port Jervis, Monticello & New York R. R. and its lease to the New York, Ontario & Western R. R. Most of the short lines had their financial troubles and this one was no exception. Most of them also had their local characters, and here, the knowledge of the author has stood him in good stead. Even tho' the author has lived on the Pacific Coast for a number of years, he has kept in touch with the old "Monticello" by his visits to the old home and his father, as long as the latter lived. It was his favorite road—we all have our favorite roads and these are always the ones that we can give our best effort.

In plain, straight-forward style, the author has covered its history. It has been livened up with many an accident and incident, one of the most amusing is the one of the can of baked beans placed to heat in the agent's stove. Left untended, it exploded and baked beans were plastered everywhere in the station. This was the fault of our modest author!

The press work of this book is a beautiful job, the illustrations are clear and there are a wealth of them. The art work by Messrs. Hammack and Shaw add the final touch. This book, if not already, will be a collector's item.

BUFFALO BILL, KING OF THE OLD WEST, by Elizabeth Jane Leonard and Julia Cody Goodman, 320 pages, 8 x 5½. Illustrated. Published by Library Publishers, 8 West 40th St., New York (18), N. Y. Price \$4.95.

How many of us can recall the flamboyant posters announcing the date that "Buffalo Bill's Wild West Show" would appear in our home town, the early start the day of its arrival to witness the precision unloading of the cars and then the thrills and feats of horsemanship and

riding during the afternoon or evening performances! This book is a biography of William F. Cody—"Buffalo Bill."

Life was not easy in Iowa or Kansas prior to the Civil War and left fatherless at the age of eleven, he had to make his own way in a hard world. At fourteen he was the youngest pony express rider and set a record of carrying the mails 322 miles without rest; he was a professional hunter of bison for the Kansas Pacific R. R. and shot and killed 4,280 bison in one year and he was Chief Scout for the U. S. A. Fifth Cavalry traversing Indian-infested country with a knowledge and skill seldom equalled. It was his strategy that led to the victory over the redskins at Summit Springs and in hand-to-hand combat, he killed Yellow Hand, leader of the Sioux. His entry into the "show business" was pure accident but his fame had not only spread throughout this country but abroad and for years it played before thousands of people. Altho, he amassed a fortune, most of it disappeared by means of pet projects and unwise investments and, at the time of his death—January 10, 1917—he was "sick at heart and sick in body!" Buried in Denver, Colorado, perhaps his best monument was his improvement of the Big Horn basin with its huge irrigation dam.

His older sister Julia was his confidant and this book is based on her family knowledge and the many letters that "Buffalo Bill" wrote to his sister. The author has presented the story clearly and in a straightforward fashion and this, with its authenticity makes it a delight to read. Those of us that remember this tall man, sitting erect on his white horse and with his skill as a marksman cannot help but be delighted with this book.

THE "SHORT LINE RAILROADER," published by William S. Young, 23 Parker Ave., Cranford, New Jersey. Annual subscription \$1.50.

This eight page journal, published monthly, is devoted to news items relating to our smaller railroads. There are news items, historical items, a page of illustrations and a roster of locomotives of one of these short lines. The mimeographing is good, the maps and illustrations are excellent and for those that are interested in our "short lines," this journal should be the means of keeping one up to date. The publisher is a member of this Society and this reviewer hopes that some of our members will encourage him in his efforts.

IN MEMORY OF

PROF. FRANK G. BATES

Honorary Member

Indiana University, Bloomington, Indiana

Who Died on November 7, 1955

C. L. CARSON

Annual Member

3728 Granada Street, Dallas, Texas

Who Died in 1955

ARTHUR W. FREDERICK

Contributing Member

173 Spring Street, Arlington, Massachusetts

Who Died on March 24, 1956

HERBERT A. FREEMAN

Annual Member

242 Thames Street, Groton, Connecticut

Who Died in May, 1955

HARLEY W. GIFFORD

Annual Member

1448 Oakley Street, Topeka, Kansas

Who Died on August 15, 1954

NORVIN H. GREEN

Life Member

500 Fifth Avenue, New York, New York

Who Died on April 11, 1955

MORRIS E. HOUSER

Annual Member

30 North LaSalle Street, Chicago, Illinois

Who Died in January, 1956

RODNEY A. JACOBS

Annual Member

Box 196-M, Pasadena, California

Who Died in December, 1955

C. C. MCKENZIE

Annual Member

Box 765, Quesnel, B. C., Canada

Who Died in August, 1955

RUSSELL V. PHILLIPS

Annual Member

7781 East 15th Street, Westminster, California

Who Died in April, 1956

LELAND DUFFEE WOOD

Annual Member

Massachusetts Masonic Home, Charlton, Massachusetts

Who Died on March 20, 1956

WILLIAM T. GAYNOR

It is with a great deal of regret that we report the passing of "Bill" Gaynor, as he was known to so many of us, from a heart ailment on October 6th of this year. "Bill" came from "Up-state" New York—Fayetteville, a suburb of Syracuse, his family until recently were quarrymen, dating back prior to the Civil War. With a legal training, he engaged in a certain amount of newspaper work and then became connected with the New York Central R. R. At the time of his passing he was their Assistant Advertising Manager.

He served as Chairman of our New York Chapter from 1943-1945 and was Resident Vice President of the Society at New York from 1946 to the time of his death. He was also a Director of the New York Chapter serving in that capacity for over fifteen years. His wide acquaintance in so many circles—railroads, legal, political, theatrical, etc. will make him sorely missed.

Always of a cheerful disposition, he was a likeable chap and his fund of information and stories were of interest. I don't believe that "Bill" would ever refuse a request for information or assistance from a friend of his—not if he could help him. During the past couple of years, he had worked under great pressure and his passing in his fifty-ninth year seems untimely. We shall miss him in New York and we shall also miss him here in Boston as he always attended our Annual Meetings.

JOHN W. SMITH

Thirty years ago the above gentlemen applied for membership in this Society, and thus became our first member in Scotland. Born in Wembley, Middlesex on October 18, 1892, he worked for some years with Messrs. Yarrow in Scotland and, during World War I took part in trial tests. For a time he was with the Albion Motor Works at Scotstoun but his last employment was with the British Railways at Glasgow. He passed away on September 20th last, in his 64th year.

His interests were varied and chief amongst them was railway history, not only in his own country but in ours also. He was a skilful draftsman and the Society has in its files many of his drawings and delineations. He was also interested in model railroads and served as Secretary of the Glasgow Society of Model Engineers for many years and lastly he was interested in Astronomy, serving as Assistant Secretary of the Glasgow Branch of the Royal Astronomical Society and gave lectures on this subject. A well known figure in railroad and engineering circles and one of our members serving on the Committee of Publications to which he was a valued contributor has been removed from our midst.

